History of Ancient Indian Economy

Abdul Sabahuddin
Rajshree Shukla

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The book entitled *History of Ancient Indian Economy* is a comprehensive and critical study of the economic system prevailing in India during the ancient period which is one of the oldest and complicated. Ancient traders of India exported textiles, steel and iron items to Europe, the Middle East and South East Asia in exchange for gold and silver. This book has been studied in ten chapters. First chapter deals with the research methodology applied in study of economic history; historical evolution of material culture is discussed in second chapter, third chapter describes intellectual advancement and material progress; fourth chapter focuses on agrarian and mercantile economy of the Indus Civilization; process of Aryans settlement and their economic progress has been studied in fifth chapter however sixth chapter examines economic background of the epic society; seventh chapter describes theories and practices of Buddhist economy; eighth chapter deals with Mauryan politics and political economics; ninth chapter examines economic regulations and industrial development under the Gupta rule; and economic life under the Harsha Rule is explained in last chapter.

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Preface

The book entitled *History of Ancient Indian Economy* is a comprehensive and critical study of the economic system prevailing in India during the ancient period which is one of the oldest and complicated. Ancient India exported textiles, steel and iron items to Europe, the Middle East and South East Asia in exchange for gold and silver. The Indus Valley civilization, an urbanized society that thrived between 2800 BC and 1800 BC, was economically very sound. Its citizens practiced agriculture, domesticated animals, made sharp tools and weapons from copper, bronze and tin for their own consumption and trade. The city-states of Mohenjo-Daro and Harappa were well-planned and apparently carried on a flourishing trade with other civilizations, such as the Mesopotamians, Sumerians, and Egyptians. One of the theories about their collapse is that they eventually overused their resources, and slowly died out.

Throughout India's early history, a number of empires and dynasties rose and fell. Economically speaking, the most notable dynasty was the Mauryas who united most of the subcontinent between 321 and 185 BC and they introduced common currency. With an empire in place, the trade routes throughout India became more secure, thereby, reducing the risk associated with the transportation of goods. The empire spent considerable resources building roads and maintaining them throughout India. The improved infrastructure combined with increased security, greater uniformity in measurements, and increasing usage of coins as currency enhanced trade. During this time, the *Arthasastra* (*science of the state*) was

written by Chanakya, an adviser to Chandragupta Maurya, which is one of the most important ancient texts on economics, politics and administration. It was a treatise on how to maintain and expand power, obtain material gain, and administer an empire. It covers both theory and practice and contains many clear and detailed rules regarding the governing of an empire.

Research in early Indian economic history has been seriously inhibited by the fact that the bulk of it has been done source-wise, especially the monographs relating to the age of the Buddha. Most of the works do not rise above the level of mere inventories of disparate facts gathered from different sources mutually unrelated in their historical context. Naturally, continuities and discontinuities in early Indian economy have been obscured. Of course, some recent studies in India and abroad recognize several chronological strata in many early literary texts. But, their methodological implications have not been fully appreciated by some researchers who still continue to think in terms of the Epic age, the Buddhist period and so on.

This book has been studied in ten chapters. First chapter deals with the research methodology applied in study of economic history; historical evolution of material culture is discussed in second chapter, third chapter describes intellectual advancement and material progress; fourth chapter focuses on agrarian and mercantile economy of the Indus Civilization; process of Aryans settlement and their economic progress has been studied in fifth chapter however sixth chapter examines economic background of the epic society; seventh chapter describes theories and practices of Buddhist economy; eighth chapter deals with Mauryan politics and political economics; ninth chapter examines economic regulations and industrial development under the Gupta rule; and economic life under the Harsha Rule is explained in last chapter.

This book would be an invaluable asset for the graduates and postgraduates students as well as academicians, researchers and policy-makers. Enlightening feedback and suggestion are solicited.

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1

Introduction

The study of ancient Indian economic history goes back to the middle of the nineteenth century, when Christian Lassen devoted fairly long chapters to industry and commerce in his *Indische Alterthumskunde*, published in four volumes between 1847 and 1861. His monumental history of India down to the fall of Vijayanagara emphasized political history, the economic sections occupying a subsidiary place. He was followed by Richard Fick who dealt primarily with the social or caste relationships prevalent in north-eastern India in the age of the Buddha and described occupations and trade guilds in about eighty pages (Mitra, 1920). Fick's work was entirely based on the Buddhist birth stories, which were used by Mrs Rhys Davids for a fuller reconstruction of economic life in the sixth century BC (Davids, 1921) Lassen, Fick and Mrs Rhys Davids were primarily philologists, and whatever they wrote on early Indian economic life was marginal to their main area of interest. Their writings therefore do not indicate any distinct trend in the historiography of early Indian economy.

But many historians of the nineteenth and twentieth centuries, who wrote under the auspices of the imperial government and had pre-conceived ideas about the Indian past, set a distinct trend in Indian historiography. As early as 1817 James Mill asserted that Indian society had remained substantially unchanged since its

inception. His view was shared by several British administrator-historians, including Elphinstone who, under the spell of romanticism, spoke glowingly of the unchanging village communities of ancient India. The administrator scholars of the nineteenth century firmly believed that the British imperial administration could change the Indian socio-economic set-up by legislation (Dumont, 1971: 57-67). Their study of the Indian society and economy inspired Marx in his reconstruction of the Asiatic mode of production, characterized by the predominance of self-sufficient village economy, the absence of privately owned land, and the complete subjugation of village communities to the state (Thorner, 1966: 33-66).

The best known exponent of the imperialist view of Indian history was Vincent A. Smith. Trained in more advanced techniques of historical research than were available to his predecessors, Smith devoted himself to the study of the general history of ancient India. But in 1904 he made a significant observation that in ancient times land was owned by the king. This theory suited the British colonial interests and was upheld by several other British historians, who apparently wanted to make out a case for introducing agrarian changes by the British government in the late nineteenth and early twentieth centuries (Hopkins, 1901: 206-229).

On account of their interest in foreign rule British writers after Smith gave special attention to India's connections with Europe and the Greek rule in India. In numismatics the study of Indo-Greek coins received their chief attention and in the study of trade they were attracted by India's commerce with Europe. In 1916 H. G. Rawlinson wrote his *Intercourse between India and the Western World*, which covered India's commercial contacts with the Graeco-Roman world from the earliest times to the fall of Rome. In 1928 E. H. Warmington produced a full-scale study of the subject on the basis of Greek and Latin sources. His *Commerce between India and the Roman Empire* (Cambridge, 1928) underlines the importance of the discovery of the monsoon in AD 48 for the Roman navigators and enumerates articles of export and import between India and the Mediterranean region of the Roman empire. Indo-Roman trade

continued to attract the attention of British scholars till the fifties. In 1951 Charlesworth resurveyed the evidence relevant to this theme (Coleman, 1951). Three years later Mortimer Wheeler published *Rome beyond Imperial Frontiers* (Pelican, 1954), which mentions the Roman objects found in Arikamedu and other places in south India as a result of excavations since 1946. By implications all these writers provide some justification for the commercial enterprise of the European nations in India in modern times and support the British exploitation of the Indian resources. A necessary corrective to this tendency is provided by Motichand's *Sārthavāha* (Patna, 1953) in Hindi which recounts ancient trading activities mainly on the basis of indigenous texts and stresses the role of the trading communities, the vaiśyas, Selthis and gahapatis, in promoting trade and commerce. This however does not mean that the British impact on indigenous writings on early Indian trade has been altogether eliminated. In a recent work Adhya states that most Indo-Roman trade was carried on by foreigners who came to this country by land and sea routes, collected commodities and sold them to foreign consumers (Adhya, 1966; Chakraborty, 1966). He finds no evidence of the participation of Indian merchants in this trade, and describes them as an unenterprising lot. This impression could have been modified by a detailed analysis of India's commercial contacts with South-East Asia, but its treatment in Adhya's book is skimpy.

The main challenge to the historical models put forth by British historians came from Indian scholars, who, under the influence of the growing nationalist movement, wrote in conscious opposition to the imperialist view of Indian history. The development of nationalism and political consciousness at the turn of the century made the Indian scholars keenly aware of the economic exploitation of India by the British, which formed the theme of the writings of Dadabhai Naoroji and R.C. Dutt. The strong nationalist movement that followed the partition of Bengal in 1905 gave a great impetus to the study of the economic conditions of ancient India (Rao, 1911; Ayyar, 1911). One of the first works which contested the British notions of India's economic past was R.K. Mukherjee's

Indian Shipping and Maritime Activity (Oxford, 1912). In contrast to Rawlinson and Warmington, he drew his material from both Indian and foreign sources. Deficient in intelligent discussion of the economic and technological aspects of the problem, the book sought to prove that "the ancient Indians fully utilized the opportunities presented by nature for the development of maritime activity and established their colonies in other Askin countries" (Basham, 1964: 146-60). A more forceful attack on the imperialist writers came from K.P. Jayaswal, who was considered a potential contributor to "the seminaries of sedition" and was made to resign his post in the postgraduate teaching department of Calcutta University by the Bengal government in 1912-13. His articles contributed to the Modern Review between 1912 and 1915, which later appeared in the form of his famous book *Hindu Polity* in 1924, were clearly directed against the imperialist historical thinking. He strongly criticized Smith's view on the ancient Indian land-ownership. A staunch nationalist, Jayaswal did not like British interference with the landed possessions of the big zamindars and therefore argued that in ancient India there prevailed the individual ownership of land. He did not write any monograph on early Indian economic history himself, but he was followed by a host of Indian scholars who flooded Indian journals with numerous articles and wrote several theses on the subject.

The period between 1916 and 1925, coinciding with the post-war nationalist and revolutionary movements sweeping across Europe and Asia, marked the peak of our nationalist movement. It saw the publication of several monographic studies of early Indian economic institutions. One of the earliest of these was R.C. Mujumdar's *Corporate Life in Ancient India* (Calcutta, 1918). Majumdar sought to establish "beyond doubt that religion did not engross the whole or even an undue portion of the public attention..." in ancient India. This countered the popular European cliché about India that she had put all her energy into metaphysical speculations (Muller, 1859: 3; Thaoar, 1972: 18; Mishra, 1962; Kapp, 1953; Shea, 1954: 504-22; Myrdal, 198; Maddison, 1971). Majumdar tried to

demonstrate the importance of corporate economic activities in the form of guilds and criticized Mrs Rhys Davids, who did not come across "any corporate organization of the nature of a guild or Hansa league" in the Jātaka literature. Two years later R.K. Mukherjee published his *Local Government in Ancient India* (Oxford, 1920), which covered the same ground in more detail. In contrast to Majumdar, he utilized the bulk of accessible epigraphic material, especially from south India, though a separate study of guilds in that region was made by K.R.R. Sastry.

Though several specific themes of early economic history attracted the attention of Indian scholars in the twenties (Ayyar, 1927), comprehensive surveys of early Indian economic institutions and practices were attempted by J.N. Samaddar, M.A. Buch, N.C. Bandopadhyaya and later by S.K. Das and Pran Nath. Based on literary texts, Buch's book discusses property rights, currency and prices, trade and transport, public finance, etc., though it does not give any idea of the development of the different features of early Indian economy. Bandhyopadhyaya seeks to make "a systematic study of economic development" in ancient India with special reference to the land system, agriculture, industry and trade. He claims to have divided the economic history of India into periods "from a consideration of the economic forces and phenomena characterising them". But Das tags on economic history to the political. With the possible exception of Samaddar and Pran Nath (Samaddar, 160) all these writers were consciously or unconsciously inspired by a feeling of nationalism, and they tried to present ancient Indian economy in a better light. They argued against the idea that ancient Indians had nothing to do with the problems of material life. They sought to prove that modern practise such as banking, partnership, etc., obtained in early Indian society. They tried to show almost invariably that economic conditions in ancient India were better than those of their own times (Buch, 192-93).

The Indian nationalist economic historians benefited considerably from a significant new body of evidence made available by the efforts of the British administrators who turned Orientalists. The

decipherment of the brāhmī script by James Prinsep in 1837 opened up the epigraphic sources. The appointment by the Government of India of Alexander Cunningham as Archaeological Surveyor in 1861 promoted official and unofficial search for them (Sarkar, 1965: 8-10). By the 1920's a good deal of epigraphic material was made available. But what came as a great boon to nationalist historians was the discovery and the partial publication of the *Arthaśāstra* of Kauṭilya in 1905 in the *Indian Antiquary* by R. Shamasastry. The full text of the *Arthaśāstra* was first published by him in 1909, and its first English translation in 1915. The impact of the discovery of this text was so great that from 1910 to 1930 most Indian historians contributed to the literature on it. There followed a spate of books and articles which glorified early Indian economic life, partly in reaction to imperialist thinking and partly as a step towards the building up of national self-respect (Sharma, 1968).

One of the earliest writings on the economic content of the *Arthaśāstra* was by H.C. Ray (1922: 429-46), who detected in Kauṭilya's social and economic policies the elements of modern state-socialism developed in Germany by the social legislation of Bismarck. The Kauṭilyan legislation, according to Ray, embraced all types of production and sought to protect labour against exploitation. He held that to the ancient Indian king the welfare of the people was more important than that of his own. In 1927 Rao Bahadur Rangasvami. Aiyangar (1934) postulated that the socio-economic idea of the *Arthaśāstra* was a combination of state socialism and a *leissez-faire* policy. In his view Kauṭilya's economic theory guarded against the "fallacies which have cropped up in western economic theory." Therefore he opined that a knowledge and study of ancient Indian economic thought could "counteract the modern tendency to import some of the socialistic doctrines of the West into India."

Of the Indian scholars of the twenties U.N. Ghoshal handled his sources most critically. His *Contributions to the Study of the Hindu Revenue System* (Calcutta, 1929) was the first serious study

of the taxation system of India from the Vedic age to c. AD 1200, but it gave maximum space to the Maurya period because of the ready availability of the *Arthaśāstra* material. Ghoshal states that the principles of taxation formulated in early times surpass the achievements of classical antiquity and tend to approach the ideas of European thinkers of the seventeenth and eighteenth centuries (*Ibid.,* p. 17). In his opinion the early Indian view (as found in the low-books) that taxes are the king's wages for the services of protection is identical with "the fashionable doctrine of the 17th and 18th century Europe, namely, that taxes are the price paid for the services of the public authorities. Refuting V.A. Smith he states that "there is little, if any positive evidence" to prove that "the burden of taxation in ancient and medieval periods was so heavy as to leave the cultivator a bare margin for subsistence.'

The idea is repeated by Ghoshal in *The Agrarian System in Ancient India* (Calcutta, 1930), where he states: "...the glimpses which the observations of the foreign travellers furnish into the actual condition of the people generally indicate a happy and contended peasantry." To landownership Ghoshal devotes a full chapter and asserts that the brāhmaṇical law not only had a clear notion of the concept of ownership in general but also of the essential qualities and attributes of private ownership of land. He does not give any credence to the foreign accounts which indicate the prevalence of royal ownership of land in ancient India. A more eloquent glorification of early Indian taxation system came from M.H. Gopal in his *Mauryan Public Finance* (London, 1935). Drawing almost exclusively on the *Arthaśāstra*, Gopal compared early Indian economic ideas and institutions not only with those of the ancient world (especially Athens) but also with modern principles and practices. The *Arthaśāstra* has continued to inspire nationalist economic historiography till recently, an can be seen in K.M. Saran's *Labour in Ancient India* (Bombay, 1957) (Pathak, 1953: 401-08; Sastri, 1958-59: 11-26).

Obviously the nationalist writings of the twenties and thirties regarded the ancient period of Indian history as one of considerable

prosperity and general contentment. The patriotic bias often resulted in an exaggeration of the self-sufficiency of the early Indian village out of all proportion, and a greater emphasis on the "socially productive aspects of the corporate institutions (caste included) of pre-British India" than warranted by available historical evidence (Morris & Stein, 1961: 182). By presenting an encouraging picture of the past Indian historians sought to fill the people with, self-confidence which was essential to sustain the freedom struggle and viewed the British influence in India as a malevolent force that destroyed the moral and social basis of Indian life (Bosu, 1931). But they often tried to cover up the social inequalities characteristic of the early Indian society by vague philosophical platitudes (Shama Sastry, 1933-21; Kalel Kar, 1933: 2976-90; Mukherjee, 1941: 91-96; Motichand, 1945; 1830). The nationalist economic historiography, however, brought to light certain important facts such as the existence of the guild system, the diversification of mechanical arts and occupations, money-lending (Bhargare, 1943; Bal-Krishna, 1926), agriculture and irrigation (Venkeyya, 1904) land system, etc.

The nationalist economic historiography stimulated interest in regional and local histories. In the twenties and thirties appeared an impressive number of books and articles dealing for limited periods with the various regions of the Indian subcontinent. We may first mention A.S. Altekar's *History of the Village Communities in Western India* (Bombay, 1927), which deals with the rural economy of the region in the early centuries before and after the Christian era. His *Rāshṭrakūṭas and their times* (Poona, 1934) concentrates on political history, but it gives a chapter to industries and crafts, trade, exchange ratio of various exchange-media, prices of commodities, cost of living, etc. Sketchy in the extreme, the chapter ends with the assertion that "the people were better off than they are at ""present"" (Altekar, 1934: 398). In the absence of adequate contemporary source-material, Altekar often relies on earlier (*The Periplus of the Erythraean Sea*) and later (the accounts of Al-Idrisi, Marco Polo, Ibn Batuta, etc.) sources. Particularly lacking in critical scholarship, Altekar's formulations are now generally untenable.

The real impetus to the study of economic history of the peninsular region came from the writings of K.A. Nilakanta Sastri, whose works "have created a new awareness of the history of the sub-continent by bringing the history of the south into perspective" (1929). Primarily interested in the general history of south India, he did not neglect its economic aspect. In his *Colas*, taxation, agriculture and land tenure, industry, trade and coinage, and weights and measures receive separate sections. Drawing largely on inscriptions, he describes the economic conditions during the time of the Cola rulers, but does not pinpoint those features of the socio-economic institutions which are peculiar to the period. But Nilakanta Sastri brings to light some interesting and new pieces of evidence, and systematizes the mass of details bearing on the land tenure, industry and trade, and the economic importance of south Indian temples. He however ignores the inconvenient facts of the past. In spite of considerable evidence to the contrary he attributes to the Cola society "a wonderful social harmony based, not on equality of classes or individuals, but on a readiness to give and take, a mutual goodwill that had its roots deep down at the foundations of commercial life" (1935: 542).

The tendency to praise the past is less pronounced in C. Minakshi's *Administration and Social Life under the Pallavas* (Madras, 1932), which gives a sketch of taxation, weights and measures, irrigation, famines and rural economic life in south India during the time of the Pallavas. Similarly K. Gopalachari's *Early History of the Andhra Country* (Madras, 1941) surveys the towns situated on the eastern and western coasts, and the land system, and guilds in the Andhra region in the early centuries AD. The reconstruction of economic life in early south India is far from adequate in the above-mentioned works. Principally concerned with dynastic histories, these works lack perspective in treating economic life and institutions (Arokiaswami, 1956; Bhatia, 1970; Derrett, 1957; Puri, 1951; Idem, 1965; Sharma, 1959; Viiji, 1952).

More detailed studies of early south Indian economic history were undertaken by Gupta (1933) and Appadorai (1968). Gupta

gives us the first full-length study of the agrarian system of south India in early medieval times. He treats the subject under four main divisions, the habitat, the cultivated tracts, the general waste lands and the forest tracts. His book provides some new information on land tenure and the revenue system with that of the north. On the contrary his uncritical lumping together of literary and epigraphic material from the north and the south has obscured whatever regional variations may have existed. Gupta's excessive reliance on Sanskrit literary sources may be seen in his sections on landowneaship, which are based almost entirely on the *smṛti* literature. In this respect Appadorai's work is better. It studies land tenures, agriculture and the nature of south Indian village communities, commerce, guilds, towns, industries and foreign trade from AD 1000 to AD 1500. Appadorai deals with the economic role of the state and concludes on the basis of the foreign accounts and epigraphic references that taxation may have been oppressive. His treatment is generally descriptive, and does not try to trace the evolution of south Indian economic institutions. However, he does not load his work with citations from north Indian sources and emphasizes the main features of the economic conditions of the region. He shows a general awareness of some of the basic issues of Indian historiography. The discussion throughout his book, in contrast to that in K.M. Gupta's, is orderly, and his formulations have not been substantially altered by subsequent research. During the three decades following the publication of Appadorai's *magnum opus*, interest in south Indian economic history seems to have languished. The casual and sporadic forays into the subject in the subsequent period do not add substantially to our knowledge except by providing a few pedestrian details (Chatterjee, 1940: 156-68; Venkates Warlu, 1946: 12-16; Rajan, 1952; 87-101; Krishnamurty, 1960-61: 113-69; Derret, 1958: 61-81).

In recent years detailed economic studies of the different regions of peninsular India have been undertaken. K. Sundaram in his *Studies in Economic and Social Conditions of Medieval Andhra* AD 1000-1600 (Machilipatanam and Madras, 1968) gives an account

of metal work, jewellery, carpentry, architecture, spinning and weaving, salt manufacture, tailoring, etc., of the artisan communities (especially the Panchala and Teliki communities), and of trade and commerce. He draws upon inscriptions, local traditions, works of Vallabhācārya, Srīnātha and Koravi Goparāju and the accounts of Marco Polo, Abdur Razak and Nicolo Conti, but he hardly discusses their credibility. The book is a compilation of useful and fascinating details which often "float within a thin fluid of unwarranted pre-conceptions, insupportable assumptions, vague and sweeping genaralizations" (JAS, 1968: 637). Analysis is practically absent also in D.R. Das's *Economic History of the Deccan* (Delhi, 1969), which covers the period AD 100-600. The book is spread over fifteen chapters on geographical background, land, revenue system, agriculture, forests, famine and irrigation, towns and cities, associate life in the town and village, mineral resources, crafts and industrial arts, profession and occupation, organization of industry and trade, trade and commerce, banking and currency, but it does not give any idea of the elements of change and continuity. A useful compendium of economic data, it does not tackle some of the basic questions relevant to the understanding of the historical processes. It provides a list of agricultural products in the Deccan during the first six centuries of the Christian era without telling us why and how sedentary agriculture developed in the area during the post-Maurya period and not earlier. Nor does he say anything about the agricultural techniques. He discusses the general layout of towns and cities on the basis of literary and archaeological material but sees no connection between urbanization on the one hand and the growth of commerce and crafts on the other. Each aspect of the Deccan economy is studied in isolation, often on the basis of sources which may have little or no bearing on the period and area covered by Das. He therefore fails to make the economic history of the Deccan meaningful. What may be said of Das's book is largely true of all the studies of the early south Indian economy with the possible exception of a few recent articles which are based on a rigorous analysis of sources and suggest new lines of enquiry (Stein, 1959: 163-76).

A broad trend noticeable in the writings on early Indian economic history is represented by those writers who seem to have been influenced by vague socialist thinking and ideas of the materialist interpretation of history. In point of time the first historian of this group is A.N. Bose who produced a study of rural economy of north India in 600 BC-AD 200. Perhaps owing to political conditions in the forties Bose does not confess his indebtedness to Marxism, but in the concluding chapter of his book he discusses class and class-consciousness, class struggle and compromise. In contrast to the nationalist historians, he tries to show that all was not well with the ancient economic system and that according to the *Jātaka* stories the peasants were exploited by the princes (Mukherji, 1945: 8-48). Marxist influence is more explicit in the writings of B.N. Datta, who was associated with the terrorist movement in Bengal. As a young revolutionary living in exile he visited Moscow as early as 1921 and came in contact with the world communist movement. Datta does not confine himself to any particular phase of early Indian history as Bose does. He takes a long view of the socio-economic developments throughout the ancient period. In his *Studies in Indian Social Polity* (Calcutta, 1944), which deals mainly with the origin and growth of caste, he devotes small sections to the class struggle in ancient India and to the growth of feudalism; the latter theme is assigned a separate chapter in his *Dialectics of Land Economics in India* (Calcutta, 1952), which seeks to trace the history of the land and its tiller from the Vedic age to the end of the British rule. In 1949 was published Dange's *India from Primitive Communism to Slavery*, which tried to prove the emergence of slave society in the later Vedic period on the basis of material cleverly extracted from the Vedic texts. These writers lack the thoroughness of later Marxist historians, and many of their conclusions have been contested. But their works may be treated as landmarks in the development of early economic historiography. They made a departure from the stereotype nationalist writings and offered new and useful insights into the subject by trying to explain the early Indian economic developments in terms not peculiar to India but of universal application.

The best representative of Marxist historiography in India is D.D. Kosambi (1956). For him "history is the presentation in chronological order of successive changes in the means and relations of production." Any 'personal', 'episodic', drum-and-trumpet history of India, he points out, "should be enjoyed as romantic fiction" or "like some Indian railway time-table." It is in accordance with this attitude that Kosambi treats culture as the essential ways of the life of the people, and not purely as a matter of intellectual and spiritual value. To him all history is basically economic history. Not surprisingly therefore he tries to explain the major historical developments on the basis of changes in the mode of production. The type of history Kosambi seeks to reconstruct is difficult. For the early Indian literature, which has been the basis of all earlier studies, is overwhelmingly religious and ritualistic and deficient in economic data. To counterbalance a purely philological and linguistic approach he uses the anthropological material and shows that throughout the centuries of Indian history there has been taking place change from the tribal to the peasant economy. Thus the technique followed by Kosambi is the collation of written records "with archaeology and the interpretation of each of these in conjunction with ethnography (Kosambi, 1963: 177-202). But the impact of his methodology on Indian historical research has been rather slow: for interdisciplinary cooperation is easier recommended than achieved.

Generally Indian scholars have so far been highly allergic to Marxists, who are often held guilty of blatantly forcing the historical evidence to fit into a supposedly rigid framework laid down by Marx and Engels. Admittedly, some historians Like Dange and Hussaini (1962) have adhered to the orthodox Marxist scheme of periodization, in reaction to which there has grown up a belief that Marxism stands for a unilinear development of history. But according to Kosambi "Indian history does not fit precisely into this rigid framework" (1963-23) and ancient Indian society, unlike the Greek and the Roman, was not based on slavery. In his opinion chattel slavery did not matter in the relations of production and as a supply

of labour for economic production its place was taken by the members of the sūdra or lowest caste whose surplus could be appropriated. Thus Kosambi does not show any procrustean adherence to the slavery-feudalism-capitalism scheme. But the denial of the economic importance of slavery in ancient India has been questioned by some Marxist historians, and Dev Raj Chanana's *Slavery in Ancient India* (English edition, Delhi, 1960) is a major contribution to our knowledge of the origin, extent and nature of slavery during the first six centuries preceding the Christian era (Sharma, 1959: 389-98).

Kosambi departs from the orthodox Marxian notion of the "unchangeableness of Asiatic societies." He points out that the very formation of the village economy with the plough used on a fixed plot of land implies a tremendous advance in the means of production. Self-sufficiency which, according to the founders of Marxism, is a characteristic feature of Asiatic societies, is not possible in the strict sense of the term. For, he tells us, most of the Indian villages produce neither salt nor metals, the two essentials that had to be obtained by exchanged (Gopal, 1973: 763-70). Like Kosambi, most Asian Marxists have differed from Marx's formulation on the 'stagnatory' and 'vegetative' life of Asiatic society. The myth of millenary stagnation of Indian society has been ably exploded by R.S. Sharma. who marks definite stages in the development of its economic basis till the beginning of feudalism from the Gupta period onwards (1966: 52-89). Both Kosambi and Sharma, however, agree that by the end of the Gupta period the Indian village became nearly self-contained owing mainly to the decline of trade and urban life, though neither accepts the scheme implied in the theory of the Asiatic mode of production which had within it certain dissolving elements and therefore underwent a series of transformations (Thorner, 1966: 33-46; Ghua, 1969: 77-78; Hobsbawm, 1966: 39). The simple structure of the closed peasant village economy, Kosambi appears to believe, was disturbed during the early centuries of the Christian era when kings began to transfer their fiscal administrative rights over land to their subordinate chiefs,

who thus came into direct relation with the peasantry, a process he terms "feudalism from above." It reached an advanced stage of development during the period of the Guptas and of Harṣa. Kosambi postulates that at a later stage "a class of landowners developed within the village between the state and the peasantry, gradually to wield armed power over the population." This process he calls "feudalism from below?" But it would be wrong to suppose that a class of landowners above the peasantry did not emerge until the later centuries of the first millennium. Sharma has cited Yājñavalkya (fourth and fifth centuries AD), who lays down that land should be assigned to the cultivator (*karṣaka*) by the landowner (*kṣetrasvāmi*) and not by the king (*mahūpati*), who, of course, was entitled to the-fruits of improvement made on land in the absence of an owner (*svāmi*). In the organization of land economy Yājñavalkya introduces three stages, namely, *mahīpati* (king) *ksetraṣvami* (landowner), and *karṣaka* (cultivator), which is roughly corroborated by Bṇhaspati (sixth and seventh centuries AD). The latter lawgiver makes it clear that the *svāmi* formed an intermediate stage between the *raja* and the actual tiller of the soil. On this basis it may be suggested that the *svāmis* or landowners leased out land to temporary cultivators and lived on the rent collected from their tenants. In view of this, Kosambi's two-stage theory of feudalism is open to question (Habib's, 1957: 220-27).

In recent years several scholars have contributed to the literature on early Indian feudalism? But R.S. Sharma's *Indian Feudalism*: *300-1200* (Calcutta, 1965) is the only comprehensive work on the subject. It deals with the origins of Indian feudalism (AD 300-750) and studies the feudal polity and economy under the Pālas, *Pratīhāras* and *Rāṣtrakūṭas* (AD 750-1000) as well as during the two centuries preceding the establishment of the Sultante (AD 1000-1200). According to Sharma feudalism in India, unlike in Europe, began with the land grants made to learned *brāhmanas*, temples and monasteries for which the epigraphic evidence begins from the first century AD and multiplies by Gupta times when villages together with their fields and inhabitants, fiscal, administrative and judicial

rights (with the right to enjoy fines received), and exemption from the interference of royal officials were given to religious beneficiaries. What was abandoned step by step to the priestly class was later given to the warrior class. Religious as well as secular (or service) grants became increasingly popular with the emergence of local and self-sufficient economies marked by lack of commercial intercourse, decline of towns and paucity of coins (Ghosh, 1973). The economic essence of Indian feudalism, like that of European, lay in the rise of landed intermediaries leading to the endearment of the peasantry through mounting tax burdens, increasing obligations to perform forced labour and the evils of subinfeudation.

Sharma postulates the existence of serfdom in Gujarat, Madhya Pradesh, Kangra, Andhra, Orissa and Bengal during the sixth and seventh centuries on the basis of epigraphic references to the transfer of individual peasants and labourers together with the donated land. He also cites a Chinese account of AD 732 to show that the practice of donating villages together with villagers to temples and monasteries was fairly common throughout the country. The crucial passage, in his opinion, indicates the general emergence of serfdom (Sarkar, 1966: 351-57). The weakness of Sharma's thesis lies in the inadequacy of the data, to which his critics have drawn attention (Coulbourn, 1967: 68-217). For a fuller picture of the feudal developments in India a close examination of the vast mass of south Indian epigraphic material is essential, which Sharma has obviously not done.

The appropriateness of the term 'feudalism' to describe Indian situation between AD 700 and 1200 has been a matter of animated debate (Sarkar, 1969). But this cannot minimise the Marxist historians' chief contribution which lies in their challenge to the notion of a stagnant Indian society. They have questioned the validity not only of the imperialist theory of Oriental despotism (Kosambl, 1957) but also of the Marxist model of the Asiatic mode of production, which, at any rate, should not be taken as crucial to the Marxist historical philosophy. For their interpretation of Indian history the Marxist historians in India, as elsewhere, have depended

largely on the principles of dialectical materialism. They have therefore tried to indicate "not only the periods of change but also the nature of change" that took place through centuries. In the field of economic history this has led to a fresh study of early Indian agrarian relations (Sharma, 1958: 225-24), mostly on the basis of early Indian land grants, which can enable us to answer some; fundamental questions relating to the changing agrarian structure and property relations, growth of towns, and arts and crafts (Sharma, 1964).

The wider application of Marxist approach to early Indian economic history may suggest new problems, provide categories for organizing data, supply hypotheses by which the data may be tested and interpreted, and may lay down criteria of proof. Although it has not won general acceptance, it has indirectly influenced recent research leading to a somewhat more objective evaluation of India's past than is available in the pre-independence indigenous writing. Thus Maity (1957), through a greater use of epigraphic and numismatic material than attempted ever before in north Indian economic historiography, concludes that as regards the material life of the common people the Gupta period was not a golden age—a point supported by another work which suggests that taxes tended to increase in Gupta times (Jha, 1967). For the subsequent period Puspa Niyogi does not find any evidence to prove that the population as a whole was prosperous (Niyogi, 1962). More explicit are the findings of L. Gopal, whose *Economic Life In Norhern India* (Delhi, 1965), covering the period AD 700-1200, carefully studies the agrarian system and cites some instances of semi-serfs attached to the soil; he repeatedly suggests that the common people were far from happy and economically well off. A slightly different attitude is adopted by B.P. Mazumdar, who, in his *Socio-Economic History of Northern India (AD 1030-1194)* (Calcutta, 1960), tries to explain why northern India succumbed to the Turkish invaders. All these works were produced in the years after independence when nationalism ceased to remain a source of inspiration and new India's problems attracted attention of their authors. Not surprisingly, they

made an attempt to understand the early Indian economic life from a fresh angle. But the impact of the Marxist historiography on their writings has been at best remote; for none of them, except Gopal, shows any acquaintance with the Marxist method of analysis. Nevertheless their works contain very useful economic data, often drawn from hitherto untapped literary and epigraphic sources, and prepare the ground for a detailed analytical study of the limited chronological segments of the early economic history of north India?

In sharp contrast to the west, economic historiography in India has generally remained an obstinate pocket of resistance to the use of economic theory, perhaps mainly because very few economists have taken interest in the subject. Whatever little work has been done by such economists as Pran Nath and M.H. Gopal is out of date both in terms of the questions raised and the methods adopted Pran Nath deals, among other things, with the rate of interest, prices, population and the cost of living. But he does not go beyond itemizing literary and epigraphic references under various categories. Whatever analysis may be seen in his work (especially in the chapters on territorial divisions and population in ancient India) does not inspire much confidence. Gopal's work is an example of the abuse of modern theories of taxation and public finance to suit nationalist sentiment's. Rangasvami Aiyangar, who was not an economist, has merely compiled literary references under such well-known rubrics of classical economics as production, consumption, exchange and distribution, and public finance. Following the publication of their writing considerable material has come to light, and it awaits fresh examination by historians having knowledge of economic theory which increasingly uses quantitative methods of analysis David Thomson has described the nature of relationship that should develop between economics and economic history: "....economics and history may enter into a working partnership but never into marriage. They can aid one another, they can suggest techniques, insights, modes of approach to fuller understanding. But they cannot usefully merge....Economic history is not just a hybrid of economics and

history....it is the main area of overlap in their (economists and historians) activities, an area of common interest and mutual aid". In the west the use of mathematics in social sciences is now generally accepted, though this is far from being the case in India. There has been little realization by Indian scholars of the fact that if economic history is anything it is history that asks "how much"?, "what proportions"?, "'how representative"?, etc. Answers to such questions cannot be provided without a serious attempt at quantification. All this should not mean that there is no dearth of statistical material bearing on early Indian economic history. Hard statistical data begin to appear only towards the last quarter of the nineteenth century. In fact the genera lack of evidence has been the bête noire of all historians working on early history. But the apparent absence of material amenable to statistical analysis should not be overemphasized. For D.D. Kosambi's study of the punch-marked coins clearly indicates the further possibility of the efficacious use of statistical inference in the analysis of the historical data on early Indian economic life.

Research in early India economic history has been seriously inhibited by the fact that the bulk of it has been done source-wise, especially the monographs relating to the age of the Buddha. Most of the works do not rise above the level of mere inventories of disparate facts gathered from different sources mutually unrelated in their historical context. Naturally continuities and discontinuities in early Indian economy have been obscured. Of course some recent studies in India and abroad recognize several chronological strata in many early literary texts? But their methodological implications have not been fully appreciated by some researchers who still continue to think in terms of the Epic age, the Buddhist period and so on (Jain, 1970: 101-18). The persistent tendency to cling oddly to the outdated ideas on Indian chronology has to be positively discouraged and combated. It will be helpful if we introduce some sense of periodization into the economic history of early India and try to mark the main stages in the economic developments from the beginning to AD 1200 on the basis of "the

substantial changes in economic organization, direction and pace of activity"? This will require a careful use of sources such as the *Mahābhārata* whose different chapters belong to different periods. Similarly the temptation to draw heavily upon the *Arthaśāstra* will have to be resisted as also the practice of explaining developments in the twelfth century on the basis of the information available in the text.

Although epigraphic material has also been studied as a source of economic history, there has been a general unwillingness on the part of scholars to subject it to a critical scrutiny. The ever growing accessible body of land charters can now be studied in two possible ways. We may ask major questions regarding self-sufficient economy, ownership of land, rate of productivity, relation between agriculture and crafts, fragmentation or consolidation of holdings, extent of the use of money, etc. Alternatively, we may attempt a thorough analysis of the available economic data in the land grants under well-know categories. In our opinion the second process should precede and form the basis of the first. A detailed study would involve identification of villages granted and the fiscal units in which they were situated. It will mean an examination of the multiple-village fiscal unit introduced by the Rajputs. From an examination of land charters it may be possible to know whether there obtained the same type of village in all parts of the country, including Kerala and Assam, or whether the system differed from area to erea (Boden-Powel, 1896). Again, the region-wise charts of the donees prepared in chronological order can give us an idea of the relative numerical and economic strength of the *brahmanas* (individuals and in groups), *matlhas*, (Niyogi, 1967) temples, vassals, civil and military officials, who were granted land. A fruitful line of inquiry may be the study of the irrigation system on the basis of inscriptions. The theory that the main reason for the prevalence of despotic rule in Asia was the central control over irrigation will have to be examined in relation to India in early times (Leach, 1959: 9-95). Lastly, land grants may be immensely useful in investigating the feudal complex of south Indian temples and their role in the economic life of the community.

The economic studies relating to the early period of Indian history suffer from a curious neglect of the mass of available numismatic material. As a result, the place of coins in the economic life of the people at a particular time and place has still to be determined (Sharma, 1969: 1-8). The study of coins for this purpose has not advanced beyond testing their specific gravity. But all this can be made far more useful if we are given some idea of the volume of the coins in circulation. The problem of the quantity of coins in India has not received any serious attention. A formula has been used to assess the quantity of the English coinage of the eighth to the eleventh centuries (Metcalf, 1965: 475-82) and also of the medieval Islamic coinage in the Near East (1966: 212-41). Although the applicability of the formula to Indian evidence has been questioned (Thakur, 1971: 269-85), it may be possible to form a rough quantitative estimate of the coinage in circulation in a particular period and region, which will lend some reality to literary and epigraphic reference to the use of coins. The frequency with which coins are used is a no less important aspect of the economic study of coins. Kosambi has attempted a statistical analysis of the punch-marked coins in this light? But his method needs to be refined and pursued in relation to the other types of coins in different periods and different areas. When a coin passes through so many hands in course of time it undergoes wear and tear and loses some weight. Therefore something can be done to find out the frequency of the use of coins to get an idea of the period of their circulation.

The area of the circulation of coins has an important economic bearing, which has to be examined in the context of the distribution of the mints (Thakur, 1972). Unfortunately the exact find spots of many coin hoards deposited in Indian and foreign museums are not specified, with the result that their area of circulation cannot be established. By taking into account the find-spots, where they are known, and also the time to which a given set of coins may belong, the numismatic evidence may be used fruitfully in reconstructing the economic life of the area concerned. Thus the earliest hoards of

Roman coins have been found in Kerala in south India, and it seems that they have nothing to do with the trade and commerce of the Sātavāhana empire with which they are associated. Similarly, if India had trade relations with South-East Asia and China, we shall have to look for Chinese coins, and the few that are available will have to be examined. In this connection the history of gold in ancient India assumes some importance and could be taken up as an independent subject for investigation (Bloch, 1967: 195-211). The view that whatever gold coins India had in the beginning mainly came from Rome or from central Asia deserves further consideration; so does the theory that the Roman gold coins were used as bullion and not as regular money in India (Chattopadhyaya, 1969). This will also lead to a re-examination of the theory that gold coins involving large transactions travel over a long distance and that coppers meant for the use of the common people are minted and circulated locally.

Numismatic studies may very well be related to foreign trade, whose decline in late Gupta and post-Gupta times will have to be explained in the light of the comparative paucity of coins in the post-Harṣa period. Although we have several important ruling dynasties in north India between the seventh and the tenth centuries AD, none of them can be definitely credited with the issuing of any series of coins. On the other hand a preliminary study suggests that trade and commerce, and use of coins revived in the eleventh and twelfth centuries, especially in Rajasthan and Gujarat, which also witnessed some kind of urbanization. One of the tasks of the economic historian, therefore, should be to account for this revival and examine the view whether urbanization was introduced into India by the Turks. The study of coins, trade and commerce may be integrated with that of money-lending, usury, etc. (Sharma, 1965: 56-67). Although it may not be possible to provide answers to all the questions raised above, most of them may be fruitfully studied in relation to the archaeological material, which is the most direct evidence of the material life of the people but has been almost entirely ignored so far by researchers (Adhya, 1966:

316-22). The volume of archaeological data accumulated during the last twenty-five years or so may be of great help in reconstructing the history of material culture, whose relevance to early Indian economic history has yet to be fully appreciated by Indian scholars. Such studies can go a long way in explaining why a particular region leaped into prominence at a particular stage and became the nucleus of an extensive empire in early India. It may also give us an idea of the formation of different ruling groups and organizations and of their roles in the diffusion of culture traits. The process of the hinduization of primitive tribes, noted and emphasized by the writers of the nineteenth century Census Reports and now conceptualized by sociologists as sanskritization or brahmanization, can be better understood only if we carefully examine the material outfit of the vanguard of aryanization.

On the basis of the available archaeological evidence several questions relating to the material culture down to the age of the Buddha and even later may be raised. It is said that the stimulus to urbanization during the Harappan phase came from the West. Can this view be sustained by a careful and comparative study in a chronological perspective of the material culture of the Harappans and that of the Mesopotmian and Egyptian peoples? Further, how is it that the Harappan settlements were completely obliterated? What was the difference between the material equipment of the Rigvedic and that of the later vedic peoples? Moreover, if the Rgvedic Aryans owed their success to the use of bronze weapons where are those artefacts? We have a large number of copper tools and weapons, ascribable to the first half of the second millennium BC and mostly discovered in the Kuru-Pañcāla area, which became the main centre of activity of the later vedic Aryans from about 1000 BC. The source and technology of these artefacts and the economic implications of their use in western Uttar Pradesh will have to be explained. A more important question relates to the advent of iron in India. When, where and wherefrom did iron first appear in India? Is it correct to hold that the use of iron came to India from Iran? To what extent the diffusion of iron technology in north India

may account for the growth of urban settlements from c. 600 BC, characterized by development of trade, diversification of arts and crafts, the spread of the NBP deluxe ware and the earliest use of coins. Some of these questions may be answered if integrated and problem-oriented studies of archaeological remains are undertaken (Sharma, 1966: 59-66). The mass of available material may throw light not only on the habitation history of different places but also on the growth of urban centres (Glosh 1971: 233-42), technology (especially arts and crafts, and tools and implements), and transport, whose significance in the economic progress of India has not been adequately appreciated. It may also be of some help in forming a rough idea of the population density of the places where excavations have been conducted (Nath, 1927: 117-23). Thus the combination of literary, epigraphic, numismatic and archaeological evidence may give new perspectives to the economic historian of ancient India, who must get rid of his usual insularity and make use of the new and often sophisticated tools of analysis (Chanana, 1963: 2-7).

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Evolution of Material Culture: Its Scope and Importance

The evolution of human culture is intimately connected with the material basis of existence, and man, ever since his creation, has waged an eternal struggle not only to free himself from the vagaries of nature but to provide for his own comfort by modifying the environment and utilizing the forces of nature to his own account. All throughout this struggle, there remains an intimate relation between him and the surrounding nature which exerts the most powerful influence on the evolution of his life and thought. The material environment remains the basis of all his activity. He is intimately bound to the soil. The aspects of nature regulate the conditions of his existence and progress. His social life remains with the connected with the economic factors of production and distribution of his necessaries. He remains, as it were, a conscious and self-asserting though insignificant element in the working of nature's great phenomena—too weak entirely to resist her influence, and practically dependent on her bounty. At no stage of progress can he free himself entirely from her influence.

Such, indeed, is the history of human civilization, and one who wishes to engage in the study of human society, can hardly neglect man's relation to this material basis, so essential to his life and

progress. An enquiry on this nature is important from the point of view of the historian, who enquires into the progress of the community in general—the evolution of its life and progress, as opposed to its internal arrangement, the working of its component parts and the maintenance of internal order, which all come within the sphere of political history. Such a study discloses to him the real man, the man of wants and desires, and not the man of higher ideals or objectives. Anyone who fails to do this must necessarily blind himself to the existence of forces which play so prominent a part in the moulding of human society. The result of such a neglect will make him over estimate other forces, vitiate his judgment and lead to false generalisations.

The examination of these material factors of human society is reserved in particular for the economic historian who makes it the special subject of his study. It is for him to investigate the material aspect of the problem which faces the social man, and to note his efforts along with the results attained at each stage. Such a study of the various economic facts and phenomena will enable him to disclose the Influence of forces otherwise unnoticed and to estimate their effects upon the social progress. So far as social evolution is concerned this economic interpretation will throw new light in explaining the past and serve as a guide for the future.

Herein lies the importance of economic history. Yet, strangely enough, in the past it hardly drew the attention of historians except incidentally. They used to confine their attention entirely to the political history of a nation, the vicissitudes of its ruling princes and statesmen, the strife of parties, the struggle of armed forces, success or failure of movements, but failed to take into account the economic factors which contribute to man's progress or deterioration and which constitute an essential part of a nation's history in the true sense of the term. As Dr. Price observes: "Until a time not yet removed by any distance from the present day, it was thought no necessary portion of the duty of the general historian to devote substantial sections of his narrative to the economic interests and affairs of the people or the country whose advancing or declining

fortunes be was studying and describing. Political changes and constitutional developments, the rise and fall of dynasties and statesmen, the vicissitudes of military and naval conflict filled the canvas and presented tempting opportunities for able draftsmanship or rich contrasted colouring." Such being the state of things the historian narrated everything but excepted from his attention the materials which directly furnished him with information on the struggles which centre round the real problems of humanity.

Of late, however changes have come to pass, which in Europe and more recently in the East, have altered the conception of history and also the ideals of humanity. During the close of the 18th century the cry of political reform put into the background all strife about theology and religion. Everywhere the people asserted themselves and claimed political power, hitherto solely reserved to their despotic rulers Nations burst the fetters of despotic authority and repudiated claims of irresponsible legitimacy to rule at its will. Along with these, or perhaps earlier, came the industrial revolution, facilitated and made possible by a series of scientific discoveries and inventions which enabled man to utilize the forces of nature to his advantage.

The industrial revolution brought about fundamental changes in the organisation and technique of industry. The introduction of machinery widened the scope of large-scale production and directly facilitated the growth of capitalism, which in its turn deprived for the time being a large number of men of the opportunity of earning their livelihood by means of manual labour. The man of labour passed into the grip of the capitalist and the struggle between capital and labour began. The antagonism of interests diverted the attention of thinkers to the consideration of forces and factors hitherto neglected. Gradually, the strife for political equality lost its charm and "the era of politics passed into that of social reform" always aiming at the adjustment of the relative claims of the masses and of the classes in a favoured situation. All this led to a revival of interest in the consideration of economic factors in human life, and though there was a tendency to over estimate these forces, they at

length received that amount of consideration which they deserve. This gave an impetus to the study of economic history which makes its special business the study of the various economic phenomena, and assigns them their proper place in human history "amid the throng of conflicting and cooperating causes to which historical effects are due."

Method of Enquiry

In studying the economic life of a community in any age the first consideration with the historian is an examination of the environment in which it lives. In connection with this, he must take into account a number of physical factors which exert so great an influence upon the life of the community. These include the climate and geographical configuration, the nature of the soil, its productive capacity, its peculiar products, the conditions of food supply and such other considerations, to which may be referred the whole of the "external phenomena by which man is permanently affected." A consideration of these not only enables us to sea clearly the extent of that remarkable "influence which in an early stage of society the powers of nature exercise over the fortunes of man" but at the same time helps us in tracing the basic principles underlying he character and development of all societies. Thus, no civilization can flourish unless the forces of nature are favourable to man and help him in producing his necessaries of life. Where natural obstacles are very great, man's efforts are blasted and the bitter struggle for existence kills the instinct of progress in him. No great civilization in antiquity nourished except in well-watered plains, or in regions naturally fertile or rich. On the contrary, when conditions are favourable to man he attains an early civilization. The valleys of the Nile, the Euphrates, the Indus, the Ganges and the Yangtse became centres of an early civilization, since, there, man was put in circumstances which enabled him easily to attain the necessaries of his life. On the contrary, the bleak desert regions, or those under the scorching sun, or the realms of eternal snow have remained devoid of culture.

Man also is influenced by the climate and configuration of his habitat. His food supply, which depends on the climate and soil,

influences him directly and regulates his efforts. Moreover, climate influences his capacity for labour. The rigours of the Arctic zone as well as that of the tropics, are both detrimental to his progress. In the one case the moist heat and the lavish bounty of nature take away man's habit of industry and kill the desire for further progress as in the case with the tropical regions of Africa; in the other, the extreme cold of the arctic regions similarly affects him. Climate and meteorological phenomena influence at the same time agriculture and industry. They determine harvests and exert an influence on man's temperament and his habits.

Economic conditions, moreover, are influenced by the geological formation of the soil and the mineral wealth hidden underneath the surface. Thus, in sandy deserts as well as in swampy regions man remains for ever a nomad or a semi-nomad, moving from oasis to oasis or from place to place in search of good pasturage for his Bock. In fertile soils, the progress of agriculture is rapid, and fosters a settled life; other industries, too, grow very rapidly; while mineral wealth enables communities to attain an early prosperity and furthers the growth of commerce. In primitive times, civilization was bound up with the wealth of communities in copper or iron. The abundance of these metals contributed to their fighting and conquering capacity and the early growth of industry. In our own days, the influence of metals is far greater. The character or the flora and fauna, too, materially influences civilization. In some cases, they go to influence the social life or the character of development. Lastly, a nation's proximity to the sea contributes to its maritime and trading activity. The normal influence of these factors, moreover, is liable to variation, owing to changes in them or through the action of outside influences. A variation of these physical factors modifies the social life. Outside influences, too, act as modifying agents. A nation may come into contact with a different type of civilization or social organisation and the influence of such a contact is very great. Such contacts may take place with the migration of communities, the intercourse of one with another through trade or through war. In any case, the changes brought

about are often remarkable and history abounds in instances where the contact of one nation with another, either through war or peace, brought in new factors in economic life by introducing new commodities, industries or industrial ideals.

Enquiry as Regards India

In order to make a systematic study of economic development in India in the earliest part of her history, we must first of all study the physical factors which influenced the growth of Indian culture. With this end in view, we must study the peculiarities of her situation, the physical character of her landscape and soil, and her climate. We shall pass on next to a consideration of her natural resources, *e.g.*, her natural mineral wealth, flora and fauna, the productive capacity and the character of her soil, and then trace the advent of the race or races, with whom the history of her civilization is so closely associated. In connection with this human element we shall enquire in detail as to the state of culture attained by the race or races of whom we have definite records at the very outset, and the nature and influence of any outside force. After a consideration of these, we shall attempt to find out suitable landmarks which may help us in determining the important periods in the history of economic development, and in this connection we shall take chronology into account. A neglect of chronology will be altogether unscientific. It will put obstacles in the way of discriminating the successive phases of development and will introduce confusion in tracing the relation between cause and effect.

We shall next, study the chief features of the economic life of the earliest period. In order to do that, we shall have to enquire into the general social condition of the community, the relation subsisting between its various sections, their mode of life and occupations, the state of arts and crafts, the exchange of commodities and the medium employed therein. Then we shall pass on to subsequent periods noting the chief economic forces and phenomena and also the nature of any change or improvement which might have taken place with regard to the economic life, or other factors associated

with these. In course of this we shall proceed to a consideration of the chief points of study as enumerated above. The plan thus followed in this work will comprise a systematic and detailed enquiry into the economic condition of India during successive ages and this will include an enquiry into the following heads, with the special purpose of elucidating their importance and bearing on the life of the community.

1 A systematic study of the village—its arrangement, its socio-economic organisation, land tenure, with a detailed discussion as to the ownership of the various classes of land. In connection with this we shall discuss the nature and origin of the village community which has a special Indian interest in it.

2 Agriculture—including a description of agricultural methods and operations e.g. ploughing—water supply—cultivated plants—agricultural labour—royal share of the produce, and such other topics bearing thereon.

3 The Chief industries, e.g. weaving—smelting and working in metals—carpentry—and other minor crafts; The influence of the growth of industry upon the life of the community; separation of the industrial element from the agricultural; movement of population from villages—to industrial centres—to towns; the growth of town life. In connection with industry, industrial organisation, labour and the part of capital in industry will also be discussed.

4 The various occupations of the people—the evolution of caste on the basis of the, division of labour.

5 The state of commerce,—internal and foreign— causes and circumstances fostering it—exchange of commodities, barter—mediums of exchange and metallic currency—money transactions and such other things as are closely connected therewith.

As we proceed we shall discuss the same topic following practically the same arrangement and order for all periods and shall

thus be in a position to note the changes introduced during each. Such a procedure will help us not only in following progress in successive stages, but also in tracing from the point of view of comparative study, the relation of cause and effect at each step.

Difficulties in Reconstructing Indian Economic History

A systematic Economic history of India during the early part of her cultural development has not yet been attempted. Some scholars have indeed given us fragmentary accounts of particular periods or have dealt with various topics bearing upon her economic life in the past. The difficulties of reconstruction are very great. First of all we have to examine the condition of an age far removed from us. There is not only want of chronology prior to the establishment of intercourse with foreign nations, but a lack of material directly bearing upon economic life and conditions. In India we are to deal with a people who neglected to keep a systematic account of their political or social activities to speak the least of the economic life. This latter circumstance makes us often entirely depend upon literary records of doubtful historical value of which we hardly know the exact date of composition, and which contain evidences of superposition of different strata of social condition and thought. As to the want of chronology prior to foreign intercourse we need not dwell at large, since it is admitted by most of the historians who are engaged in the study of Indian antiquities. But as to the lack of first-hand materials, it is indeed deplorable, when we find conclusive evidences to prove their existence in the past. The ancient Hindus distinguished as they were by a peculiar turn which made their social system assume a spiritual aspect, hardly neglected to take proper care for the advancement of the material of life.

Lack of Literature on Economics

As early as the immediate post-vedic period, we find the growth of a literature, forming in itself, a subsidiary study to the Vedas and comprising several branches known as the Upavedas. According (a)

to the evidence of the Caraṇavyūha (49th Parishista of the Atharva Veda,) *Arthaśastra* was the *Upaveda* of the *Rigveda*. This is also confirmed by the evidence of the *Caranavyuha* ascribed to *Saunaka*. (b) The *Arthaveda* (as the name of this *Upaveda* was) was solely devoted to the discussion of means of acquisition of wealth and thus included *vārttā* and other allied branches a of study, (c) A late writer—the author of the "*Sarva Siddhānta Samgraha*" (ascribed to the great Sanicaracharya has defined *Artha-Veda* as "solely devoted to the study of that happiness which is consequent upon the proper distribution of food, drink and such other things among the people"..... and "which thus brings in the fruition of those aims of life which make up the well known caturvarga" e.g. dharma, artha, kama and mokṣa.

The study of the *Arthaveda* gave rise to systematic treatises dealing with practical politics and the ways of acquiring wealth—which came to be known as *Arthasastras*. These *Arthaśāstras* were-many in number, though only one perhaps the last to be composed—that of Kautilya—has come down to us. Apart from these there were exclusive treatises on agriculture, rattle-rearing and on the ways of conducting business and trade. All these fell within the scope of Vartta the importance of which has been emphasised in more than one place in the *Mahābhārata*, and in all later works like the *Smrties* and the *Niti* works. Kauṭilya too quotes his predecessors, and all authorities agree with him in holding *Vārttā* to be one of the chief branches of study. All this presupposes an extensive literature on *Vārttā* and *Arthaniti*.

In the days of the great Kauṭilya himself a class of teachers known as *Adhyaksas* taught *Vārttā* to students and some of these were granted help from the State. (*Vārttāmadhyakṣebhyah... Ar sā.*, p. 10). Again, there is reason to believe that separate treatises were composed on the various branches of this important subject of *Vārttā*. No such work has reached us but we find the names of some in the commentaries of later works. Thus *Sankarārya* the commentator of the *Kāmandaka Nitisārā* mentions a treatise on cattle-rearing and cattle treatment by Gautama and *Śālihotra* (*tacca*

Gautama Śālihotrapraṇitām). He mentions moreover a treatise on agriculture by *Parāśara*. (*Kṛhsih-Parāśara-proktā-vijavapa-parikarmādi-vidhanārthā*) and another on trade composed by *Videharāja* (*panyam..... krayavikrayasva-rūpam vāṇijyamiti jāvat—tacca videha-rājproktam*). With the exception of a fragmentary treatise on agriculture ascribed to the sage *Parāśara*, these works so far as we know are lost.

Portions of their contents seem to be preserved in fragments in some of the *Purānas* or in later treatises which still exist in manuscript. Thus the *Agnipurāna* contains chapters on townplanning, and housebuilding (104-6). The *Matsyapurāṇa* too contains, chapters on the same and other miscellaneous topics (Ch. 257-269). A large number of works of the latter class exist in manuscript and Dr. N. N. Laha has prepared a list of these after carefully going through the catalogues of manuscripts made by Aufrecht and other scholars. The sources of information as regards the economic condition in Ancient India may be classified into:

(a) The Indian sources include contemporary or non-contemporary religious, historical, semi-historical, legal and allied literary works from which we know some thing of the social and economic life of the people. Thus we have a good picture of Vedic society from the *Vedas* and the *Brāhmanas* and some of the *Sutras* attached to them. From the Epics, the *Purānas* and the *Jātakas* too we get much information as to the social and economic condition of ancient India. But most of these literary works are non-contemporary sources of evidence since most of them describe a condition of society different from that of the period of their composition. This non-contemporary character of these works however does not take away the value of the evidence furnished by them, though we are to proceed cautiously and examine thoroughly the evidence in respect of the time and period to which it refers. This is pre-eminently the cases with the great Epic the *Mahābhārata* which took centuries to be reduced to its present from,

and the *Purānas* which along with a mass of later interpolations, fabrications and alterations preserve some very old and genuine traditions; similar is the case with that mass of popular folklore, later on transformed into the *Jātakas* or the Birth-stories of the great Buddha, written in the Pali vernacular of the day and supposed to have been reduced to their present from in the fifth century ADA critical examination of these stories which furnish us with ample reliable material for the construction of a history of the social and economic life of ancient India shows that whatever be the date of their redaction to their present form they preserve a good deal of that very remote period in which they originated and in spite of the modifications and alteration which the traditional stories underwent at the hands of the Buddhists during centuries and which can be traced, they have not materially altered. The *Artha-śāstra* and the later legal works are sources of information for the period in which they were composed. In the archaeological records we have another great source of information. These include inscriptions of ancient kings and private individuals, and of guilds, ancient coins and monuments. As a rule these are most trust-worthy to the historian in as much as they furnish him with definite information as to a particular period which is clearly known.

(b) Our foreign sources include the evidence of foreign literature containing descriptions of India. From the days of Homer downwards we have accounts of India in the Greek, Hebrew, and Latin literatures, either fragmentary or in detail. These though often fanciful, contain many useful information's. Even when such account are lacking, the silence of history is broken by the testimony of words. The names of Indian commodities and products occur in the Greek, the Latin, the Hebrew and other ancient literatures, and the philological evidence of these words

come to our help. Thus the word *Sintu* in *Assyrian* meaning cotton goods point according to Lassen to its Indian orgin. The words Elephant and Kassiteros occur in Homer's poems. Kassiteros means tin and is an exact echo of *Sanskrit Kastira*. Karpas in Hebrew, and Karpasos in Greek and carbasus in Latin bearing close resemblance to *Sanskrit* word karpasa and having the same meaning were borrowed by these nations from the Indians with whom they had commercial intercourse.

We have moreover accounts of foreign travellers about India from the 3rd century BC to a comparatively recent-age. Thus as intercourse ripened the accounts of Greek travellers and historians multiplied, and many of these like the fragments of Megasthenes, or of his successors supply us with details not to be found elsewhere. Even now they are a store of information for us. Next to them, Chinese and *Moslem* travellers visited India, between the 4th to the 10th century AD. The accounts of Fa-hian, Hiuen-tsang and of Al-beruni throw a flood of light on the social and economic condition of contemporary India.

Other Literary Works and their Evidence

Before entering into a consideration of the economic condition of India something has to be said as to the date of the works mentioned above and the nature of the evidence furnished by them. Our earliest information is supplied by those ancient hymns which have been compiled into the various *Vedic Samhitās*, in accordance with their character and importance and with reference to the various aspects of sacrificial performance. Of these the *Rigveda* contains by far the largest number of hymns written in verse for the use of the hotr priests, while the *Sāma-Samhitā* comprises hymns which with the exception of about seventy five, are mostly the same as in the *Rigveda*, distinguished only by their archaic language and adaptability for singing by the udgātṛr priests. The *Yajur-veda* on the other hand contains in addition to hymns, sacrificial directions, and explanations

which serve as hints to the adhyarju priests. Lastly comes the *Atharvan* (*Samhita*) collections, which comprise in addition to hymns, found in the *Rigveda* and *Yajur-veda* new materials, compiled together for the use of the *brahma* priests.

A careful analysis of the material contained in the various *Samhitās* convinces us of the utter lack of homogenity in regard to their composition and date. Each of the *Samhitās* seems to contain several strata of compositions belonging to different periods and different families of composers. The internal evidence of all the *Vedas* goes to prove the same. In the case of the *Rigveda*, we have express references to the older hymns and of the older schools of composers by the risis themselves. We have at present no means of classifying the hymns, according to their date of composition, but it is shown by the language of the various sections of the hymns of the *Rigveda*. What is true of the *Rigveda* is true of the other *Samhitās*. The *Yajur-Veda* too contains both older and newer materials, the former being as old or perhaps earlier in some cases than the mass of the *Rigveda* hymns. Even the *Atharva-Veda* which has been supposed to be the latest production of the rshis contains hymns rivalling in antiquity some of the oldest Rig hymns. Another point to be borne in mind is that the hymns of the *Rigveda* do not represent the earliest composition of the *Vedic* Indo-aryans. A superficial examination of the question may lend support to a contrary view since the *Rigveda* seems to have supplied many hymns to the other vedas e.g. the *Yajus* and the *Atharva*, not to speak of the *Sāma* which is almost entirely indebted to it

Among European scholars the late Dr. Martin Haug was the first to raise this point, and in his introduction to his *Altareya Brāhmana*, he asked whether, "the finished and polished hymns of the *Rigveda* with their artificial metres were the most ancient relics of the whole religious literature of the *Brāhmaṇas*". In the course of a discussion of the above question, he showed the high polish of the *Rigvedic* Hymns which no primitive people could use in their rudimentary ritual of a less developed age. After that he compared the *Rigvedic* hymns with the *Nivids* and *Nigadas* contained in the

Yajus, which appeared to him to be the older sacrificial formulae preceding the composition of the *Rcas*. The former were proved to be advanced and well developed, not only in point of language but also in thought. These *Nivids* and the *Nigadas* in his opinion were the oldest possible Vedic composition that have come down to us. Haug's views seem to receive confirmation when we examine the *Rigvedic* composition from the point of view of social and economic development. The *Rigveda*, (as will be shown in subsequent chapters) as well as the other samhitās, do not depict, a primitive, society. The evidence of these works reveal to us a "ready-made civilization "suddenly springing to our view, complete in all the details of cultural development as may be expected from a society removed from that of ours, by at least four thousand years. This makes us lean towards the presupposition of several stages of advancement, as far as the Vedic Aryans are concerned.

Date of the Vedic Hymns

As to the date of composition of the Vedic hymns, it is very difficult to determine it accurately, since they furnish no safe chronological data; consequently we depend entirely on the evidence of language or mythology and we find a difference of opinion among different sets of scholars. Some of these try to prove the comparative modernity of the *Vedic* age. Here some of their views may be quoted. Thus according to Oldenberg, the Vedic Indians lived at the time of the composition of the *Vedas*, which formed the earliest sources of their history, by the Indus and in the Punjab, some time about 1500 to 1000 BC ("die Religion des Veda" p. i.) Next to oldenberg we have the views of Macdonell summed up in his preface to the Vedic Index (p. viii) He thinks that the upper limit of the age of the *Vedas* and of the *Brahmanas* i.e. that of the composition of the oldest Vedic Hymn, is not much earlier than 1200 BC.

There are on the other hand some eminent scholars, who are convinced of the higher antiquity of the *Vedic* hymns. Prominent among these may be mentioned the names of Haug, Jacobi and

Winternitz. Haug's views on Vedic chronology are to be found in his introduction to the *Aitareya Brāhmaṇa* where he sums up as follows (P. 47-48 Vol. I). "We do not hesitate therefore to assign the composition of the bulk of the *Brāhmaṇas* to the years 1400-1200 BC; for the *Samhitās* we require a period of at least 500-600 years with an interval of 200 years at least between the end of the proper *Brāhmaṇa* period. Thus we obtain for the bulk of the *Samhitās* the space from 1400-2000; the oldest hymns and sacrificial formulas may be a few hundred years more ancient still, so that, we would fix the very commencement of the Vedic literature between 2400-2000 BC."

Jacobi who based his calculation on astronomical data as well as the Mittani tablets is disposed to assign a date, between 3000 and 2000 BC, to the origin of *Vedic* civilisation. According to Winternitz the Vedic period may be taken to extend from the earliest times (cir. 2500 BC) to 800 BC the upper limit having been reckoned by him to be not later than 2500 BC. The views of Haug thus very nearly coincide with that of Jacobi and Winternitz. On account of this absence of proper data, the reconstruction of Vedic chronology will ever present a difficult task to the scholars interested in this subject. A detailed discussion of the sąme would be indeed out of place in a treatise which is professedly an enquiry into the economic aspect of the Indian society. For the present, only this much may be said that the estimates of Jacobi, Haug and Winternitz, may be accepted as a workable hypothesis. As to the lower limit, we may roughly take the 10th century BC to be the landmark separating the Vedic period proper from the one succeeding it. By that date the Vedic tongue had ceased to be the spoken dialect of the people. The *Vedic* religion too was fast dying a natural death, in view of the cumbrousness of its ceremonies, and the fast and steady rise of philosophical speculation which we find embodied in the Upanishads and Aranyakas. The society too was charıging its character.

Next to the *Vedic Samhitās*, the *Brāhmaṇas* and the *Āraṇyakas* come in importance. These works as a whole, go to show a stage of social development, which must have been the outcome and

expression of various forces, acting upon the community. We find traces of the working of these forces in the Samhitās. Their evidence bears testimony to the expansion of the Aryans towards the east and the south, and their establishment of contract with the races dwelling therein. We get glimpses of a change in the social structure, as also in the prevailing political ideals and institutions. The compilation of these works, may be referred to a period, ranging from the time of composition of some of the hymns of the *Rig-veda*, to a period not later than the 10th century BC. Taken as a whole they may be regarded as post vedic, though they seem to contain occasionally very older materials.

Sutras and Upanishads

After the *Brāhmaṇas*, we must take into account the Sūtras and the *Upanishads*. Of the former the Srauta Sutras may be generally taken to be pre-Buddhistic, and the date of compilation may be taken to range between the eighth to the fifth century BC. The majority of the Grihya Suras were compiled not later than the fifth century BC. In spite of this rather late composition, they contain traditions and information of the *Brāhmaṇa* Period, and seem to have existed long in the memories of men—the rules being often altered and modified with the social changes and reactions.

The Dharma Sutras

The Dharma Sutras as a class may be regarded is being composed before the fourth century BC though the text we now have may contain some later additions. The social condition, the extent of *Madhyadesa*, as defined therein and the simple state of political organisation, which we find in them, all point to the same conclusion; and we may safely infer that they give us the picture of a society anterior to the time of the *Arthaśāstra* of *Kauṭilya* which we take to be a product of the 4th century BC.

Panini

As to the Sutras of Panini there are two different dates assigned to them. The first was suggested by Goldstücker, vis. the seventh

century BC. While according to some other scholars they have been placed in the fifth century BC. The bulk of the Sutras according to the evidence they furnish, appear to have been pre-buddhistic and may be referred to a period anterior to the rise of Jainism and Buddhism, though they may contain some references to the older philosophical school of the *Ājivikas*, first propounded and elaborated by *Gosāla*. The objection of those who try to prove the comparative modernity of the *Sūtras* by pointing to the occurrence of '*Yavanas*', may be met, by identifying the *Yavanas* not with the Greeks, after Alexander, but with other western nations, with whom the Indians came into close touch in the 7th and 8th centuries, or even earlier.

The Pali Works

As to the Pali Books the composition of the Tripiṭaka in their present form, ranges from the fifth century BC to the second century BC, although we may hold it with Prof. Rhys Davids that the Canon, with its *Piṭaka* and *Nikāya* divisions, was well known in the time of king Aśoka. The major portion of the first four Nikāyas and the bulk of the *Pāti-mokkha* rules, and certain books of the *Vinaya* and the *Khuddaka Nikāyas*, may be regarded as the earliest portion of the Buddhist canon and belong to the fifth century BC if not earlier. The Vinaya Texts with the single exception of the *Parivāra-pāṭha* taken as a whole may be assigned to a period somewhat anterior to Aśoka. The Niddesas, which are the canonical commentaries on the Aṭṭhaka and the Pārāyana Vaggas (of the Sutta Nipāta), perhaps the oldest materials of the Buddhist canon, may be regarded as being contemporaneous to the time of Aśoka. The Thera and Theri Gāthās in their present form probably belong to the same period. The Jātakas, or as we now have them, the Jātaka—aṭṭhakathā of Fausböll, have assumed their present form after successive redactions. Most of the stories are undoubtedly old, older than Buddhism itself. But they underwent modifications at the hands of the monks, and this process continued up till the days of Aśoka and the present redaction was compiled in the 5th cen. AD. Inspite of this, however, they give us according to Buhler, a

picture of Indian society of a period earlier than the third or fourth century BC. But in accepting the Jātaka evidence we must proceed cautiously and distinguish between the older materials and later additions and modifications without which we are sure to be misguided in respect of the period to which they may be taken to refer to. The presence of modifications and of later elements in the Jātakas has been detected even by Prof. Rhys Davids. According to him "the whole of the longer stories in the 6th volume are later both in language and in view of the social condition of India they depict, than 'those in the earlier volumes". The corroborative evidence, however, of the Jātakas is very great and on this we may safely rely.

Arthasastra

Next to these we must mention the Arthaśāstra of Kauṭilya ascribed to the prime minister of Chandragupta, the first Maurya Emperor of India. The majority of competent scholars leans towards the acceptance of the traditional view and agrees in referring the Arthaśāstra to the 4th cen. BC Recently, however, some critics have raised serious objections to the tacit acceptance of that date, and one of them, Dr. Hillebrandt pointed to the use of the name Kauṭilya in the 3rd person in connection with certain controversial points and on its basis tried to prove that the book was not written by Kauṭilya himself but by some of his disciples. These arguments were ably met by Professor Oldenberg. More recently Dr. Winternitz has also advanced arguments in 'support of the contention that the Arthaśāstra is a work of the third cen. AD. Without entering into a consideration of the points raised by the parties in the controversy as to the date of the Arthaśāstra, it may be pointed out that there is hardly any room for doubting Kauṭilya's authorship of the book. The mention of the author's name in the 3rd person is a peculiar Indian practice which we find not only among classical writers but even among later writers and vernacular poets. The work, moreover, contains clear references to Kauṭilya's authorship in four places.

Statements to that effect occur in the beginning and in the end. Thus in the first chapter we are told that the Arthaśāstra was compiled by Kauṭilya after consulting various works. Thus says Kauṭilya:—"Kauṭilyena kṛtam śāstram vimukta-grantha-vistaram". Again at the end of the chapter on Śāsanādikāra occurs the following passage:—"Sarvaśāstrāṇyanukramya prayogamupalabhya ca / Kauṭilyena narendrārthe śāsanasya vidhiḥ kritaḥ / "Furthermore, at the conclusion of the work we find the verses:—"Yena śāstram ca śāstram ca Nandarājagatā ca bhuh/ Amarsenoddhṛtānyāśu tena śāṣtramidam kritam/ Dṛṣtvā vipratipattimhi śāstresu bahudhā bhāṣyakārānām/ Svayameva Viṣṇuguptacakāra sūtram ca bhāṣyam ca/."

Apart from these references to the authorship of Kauṭilya the style and language of the book, all go to confirm its great antiquity, and we have no reason for rejecting the tradition which connects Kauṭilya with Chandragupta and places him in the 4th cent. BC. Moreover, when we consider the picture of social and political conditions furnished by the work, we are sure to come to the conclusion that the work was produced in an age which had seen the rise of Buddhism but as yet that religion had not assumed that importance and universal character which the patronage of Aśoka Maurya enabled it to do. The picture of social conditions are those which may be put down as belonging to a period immediately subsequent to the one described in the Jātaka stories. The picture of political conditions as also of the leading features of Indian Administration substantially tallies with the accounts of Greeks who visited the court of Chandragupta Maurya.

Milinda Panha

The Milina-panha gives us a picture of North Western India during the 2nd century BC just after the down-fall of the Mauryas (*e.g.* the time of Menander) though the present text may be somewhat later. Next to these, the metrical Dharmāśāstras are of great importance to us. Of these the Manusamhitā holds a pre-eminent

place by virtue of its admittedly higher authority and its wider circulation all over India. The present samhitā bearing the name of Manu is ascribed to his pupil Bhṛgu and contains in addition to older materials later additions which bear the stamp of a conservative reaction against the teachings of the preceding age. The period of this reaction, seems on closer examination to synchronise with the Sunga-Kānva Brāhmanical revival and the samhitā as a whole may be referred to that period. The *Yāgñav ya-sāmhitā*, which seems to follow the Manusamhitā in many respects may be assigned to a somewhat later date e.g. the 2nd or 3rd cen. AD. The Viṣṇu Smṛti too belongs approximately to the same period, while the fragments of Vrihaspati and Kātyāyana may be assigned to the 5th or the 6th ccn. AD. The Nārada Smṛti which shows a further advance in judicial procedure belongs to a still later date.

The Epic

As to the Epics—the *Rāmāyana* and the *Mahābhārata* it is very difficult to find out even an approximate date as to their composition, and differences of opinion exist among scholars. As a matter of fact the these works contain materials hardly homogenious in point of their date or of authorship. The kernel of both seems to be very old, that of the *Rāmāyana*, going as far back as the 6th cen. BC; while the *Mahabharata* seems to have existed in an *abridged* from even before the days of Pāṇini. The present epic, which is more of the nature of an encyclopaedia of moral and historical wisdom contains undoubtedly later additions to a somewhat older compilation, the bulk of which existed practically the same, as they are, in the 3rd or 4th cen. BC.

Thus the political teachings of the Rājadharma *Parvādhyāya* often show a remarkable resemblance to the corresponding chapters of the Arthaśāstra. Many passages exist common both in the Mahābhārata and the Arthaśāstra. The difficulty, however, lies in separating the older material from the later additions in as much as they are so hopelessly blended together. Everywhere we find a superposition of different strata of political thought and often of

social pictures of different ages. In view of these difficulties, our main guiding principle ought to be one of close examination of each chapter, before we proceed to build our theories with the evidence furnished by it. Each separate chapter must stand on its own merit. After all these, comes the Śukrantiti, a work composed in its present from on the *eve* of Mussalman intercourse with India, and furnishing us with remarkable evidences directly bearing on the economic and social life of the country. The present work Śukranitisārā seems to have been composed about the 9th cent AD, if not later. Lastly, we get some realy interesting materials from the Purāṇas, the Sanskrit dramas and poetical works and romances, which, though meagre, is of great service to us.

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Intellectual Advancement and Material Progress in Pre Indus Civilisation

India is one of those countries which have attained an early civilization. From a remote antiquity, the valleys of the Indus and the Ganges became the seat of a culture distinguished by its originality, and many sided development, Alike in the domain of intellectual advancement as also in the arts of material progress, this civilization proved its excellence at an early date. Before the Kelts and the Teutons bad passed to Central and Western Europe, before the Latins bad laid the foundation of the seven-hilled city later on destined to be the mistress of the Western world, before the Hellenes had learned the arts of civilization, the culture of India had already a long history. Precise in formation as to the date of its origin is indeed lacking, but evidences seem to exist, which may carry it back to a remoter antiquity—long before the wisest monarch of the ancient world had laid the foundation of the divine Ark of Jehovah, before Assyria had risen into a power and her proud conquerors broke the power of nations and mocked at the pretensions of their gods. Before the Egyptians were carrying their arms across Syria, before the Kanssites ruled in Babylon or the Mitannianas

were settled in North Syria,—perhaps to that age when nomadic Aryan tribes were fighting the sturdy Semites—or fierce unknown invaders were alternately spreading consternation in western Asia or settling down to found empires.

As we go on in search of the beginnings of Indian culture we are carried to a region of uncertainty and darkness, with no light to guide our steps or to illuminate the objects of vision. We lose ourselves in the dark labyrinth of hoary antiquity. With the consideration of that period which falls within the domain of pre-history we are not concerned and our enquiry begins with the age in which records are available. To those interested in pre-history the monotony of their sojourn is occasionally relieved by the find of a few cairns or monoliths containing the relics of primitive man, or the implements with which he attempted to mitigate the hardship of his struggle with nature. These supply him with data to proceed with a scientific enquiry about the evolution of man in the past. But to the ordinary historian, they are of not so great interest as to the enquirer into the history of primitive man, since to the former they supply no basis for chronology or for detailed study of events or the doings of mankind.

When we return to the region of history proper we find the fame of Indian culture spreading far and wide. The adventurous sons of India penetrated into foreign lands. Her commodities passed to other lands. By this process contact with nations was established and the stories of her wealth became known to the outside world. She became the land of wonder and of plenty. Henceforth references to her are found in the literatures of the ancient world. The Hebrew Chronicler clearly refers to her shores when he speaks of the gold-producing Havilah (Gn. II.) or Ophir whence the sailors of Hiram and those from Tarshish (Kings, 26-28) brought Solomon his gold, silver, ivory (shenhabbin); apes (Qof) and peacocks (tukim).

Later on, the Greeks came in contact with Indians, and Homer mentions some Indian commodities while Ktesias gives us a description of India, though in many places fabulous and fanciful. After him, we find India in the pages of Herodotus, the father of

history, who more precisely mentions the Indian fighters in the Persian army. With Alexander began the direct intercourse of Greece with India and from one of the ambassadors of a—lieutenant of his we have detailed descriptions of India of which fragments are preserved in the works of later writers. About the same time, or perhaps earlier, began direct intercourse with China, the Indies, and other lands. Indian missionaries carried the teaching of Buddha to the outside world and India became for a long period the teacher of the ancient world. For centuries reverence was paid to her sages by students from all parts of the civilized world. A few centuries afterward decay set in, hordes of barbarians entered and ravaged her soil or settled down to rule the unhappy land. Yet her civilization was not destroyed nor her prosperity interrupted. The conqueror became the captive in turn and yielded to the charms of the prostrate enemy.

Something different however happened in the land from the 10th to the 12th century AD, when, the tide of Saracenic conquest turned to the East and after repeated attempts broke the political power of the race which had long held sway in Hindusthan. With their establishment began a struggle for existence and for the regaining of national independence. This engaged the attention of the Indian and continued with varying fortunes on both sides till the period which saw the dawn of Modern History. This struggle however did not destroy the economic prosperity of India. She retained her position and held good her reputation for wealth and splendour. The story of her wealth passed to the other continents. Nations strove to open communication with the coveted land the stories of the wealth of which had reached their ears, and whence rich commodities had passed into their hands, through the exacting merchants of Western Asia. After repeated attempts their efforts were crowned with success. The European came as traders and later on became the masters of this once coveted land.

Environment and Natural Wealth

The prosperity of India, was largely due to the influence of those physical factors to which we have referred in the introductory

chapter and before we proceed to a study of economic conditions in India, a consideration of these with special reference to India must engage our attention. In her geographical situation, India occupies a peculiarly advantageous position, She cavers the middle-most position between the two southern peninsulas of the Asiatic Continent. The Northern half of this which may be called Continental India mainly lies to the north of the Tropic of Cancer while the peninsular region to the south of that line juts out into the Sea and stretches about 1000 miles southwards. The country a whole lies between the latitudes 36'.N and 8'.S. and between 62° and 06° Longitudes. The extreme length from North to South is about 1800 miles, while the breadth, is approximately the same. This situation was a great advantage to India and contributed to the development of her industry and civilization. Placed in the centre, her people could draw upon the natural resources of the rich archipelago of the East Indies, as well as from the coasts of the African continent. Her adventurous sons took advantage of this, and these two regions became covered with Indian colonies and settlements. Later on as her industry developed, India from her central position supplied, the markets of the West and of the Far East with her goods.

The natural boundaries of India are well defined. She is separated from the Central Asian region by the Himalayan wall on the north, while offshoots of the same, separate her both in the North-West and in the North-East from the Asiatic Continent. On all other sides she is bounded by the Sea. She thus became practically secure from invasions, and though the gaps in the mountain wall admitted free passage to conquering races which succeeded in establishing their supremacy over the coveted plains, the narrowness of the passage .nade it impossible for barbaric hordes to obliterate the settled civilizations of previous ages.

Physical Characteristics

Thus well defined and separated from the Continent, India embraces an area of about 18,000,00 sq. miles, being practically equal to the whole of Europe with the exception of the old Russian

Empire. Within this vast area are to be found diversities which are hardly met with elsewhere. The different regions vary in physical characteristics in climate in topography, in the character of soil, in their products and in various other respects. To the extreme north lies the hilly region of the Himalayas, varying in altitude from 10,000 to 29,000 feet, from the level of the sea. From the snow capped hills of this region take rise, almost all the river systems of the plain to the South of it. The extreme northern region is a land of eternal snow, and the climate of the system of high lands remains cold, all the year round.

To the South of this region lies the great plain of Hindustan covering an area of roughly of 5,00,000 sq. miles, fertile and well watered by the river systems of the Indus, the Ganges and the Brahmaputra. In the elevation of the plain we find a sudden drop from that of the Hills. In the greater part of the plain the climate is more or less continental, the heat being very great in summer, while the winter is also very cold. The fertility of the soil is increased by an ample rainfall, which rises to a maximum in the East. A portion to the South East of this plain is comparatively barren, while in the East the Gangetic Delta, is almost a muddy flat of little elevation, and cut up into small islands, by the various channels which bring the waters of the Ganges to the Sea.

Geological Account

To the South of this Gangetic plain lies the great plateau of the Deccan, surrounded by a system of hilly ridges on āll sides. The northern boundary is formed by the Vindhya and Sātpura ranges, which along with the Mahadeo hills, the Maikal range, and the hills of Chotanagpur continue the high belt separating it from the plains to the North. The plateau, which at present maintains on an average an elevation of 1500 to 3000 feet is bounded on the west by the western ghats, in the East by the Eastern ghats and on the South by the Nilgiri hills. The Western ghats maintain an average of 6000 feet, while the Eastern ghats are comparatively low. This platean is fringed on the south and east by a belt of fertile plain land, and this coastal belt forms a separate region by itself.

The evolution of these physical characteristics was an event of the remote past—long anterior to the age of human records. In the absence of these the historian must turn to those engaged in the history of the formation of the world, namely, the geologists. According to Geologists the present physical features of India are the results of a series of great revolutions which took place in the remote past, seperated from us by an interval which is beyond the conception of the ordinary historian who attempts to record the doings of man in the historical period. Geologists recognize within he area of present day— "two dissimilar areas unlike in Geological history and equally unlike in the physical features which are the direct outcome of the geological part." They recognize first of all:

1. The peninsula, which "withstood all tendencies to earth-folding for as long as the palaeontographical records go back."
2. The other area is represented by the regions to the north including even the Himalayan region which had underwent series of changes. We find repeated immersions beneath the ocean followed by upheavals of the land area.

The Oldest Portion

The oldest of the physical features was perhaps the Aravalli range of which only the divested and degraded remnants have survived to our days (which formed a powerful mountain system which existed in Palaeozoic times). Moreover in the earliest period this mountain region was flanked by a part of the peninsula stretching from the Aravalli to the present coast. India was thus represented by the Central plateau and the northern fringe of the Aravalli mountains. To the north of the region was a vast shallow which covered the area of Afganistan, Rajputana and a large part of the present Himalayan region. In Tertiary times the Gondowana beds were formed, and after the Palaeozoic era and during the secondary stage of evolution, the rock area extended over Assam and the Eastern Himalayas, while Burma and the N. E. Himalayas still remained submerged.

At this time this nucleus of India formed part of a vast Continent with which the continent of Africa seems to have been joined together by a stretch of dry land. The evidence of plant and animal life of past ages, as also of their remains found in the two regions now separated by the ocean goes to confirm the above view (Imp. Gazetteer, I, pp. 85-87). This was succeeded by revolutions in physical geography and as the result of these during the same Tertiary period the gondwava continent was broken up and the same period saw the rise of the Himalayan mountain system. As a result of the series of volcanic cataclysms 200,000 sq. miles of the Indian continent was covered with lava and the present landscape of the Deccan was formed. Towards the close of the period of volcanic activity, there commenced the great upheaval to the north, which resulted in the formation of the Himalayas, the mightiest mountain system. This took place in the Pliocene period. The collected alluvium of ages, the deterioration of rock and gravel on both sides filled up in course of time the shallow gap. Gradually the Indus system of rivers became distinct, and in historic times, the two great river systems of the Indus and the Ganges were separated and India attained roughly her present shape (Imperial Gazettoer, Vol. I p. 50-87).

This happened in comparatively recent, though prehistoric times. According to some geologists this was a gradual process, which completed itself with the close of the Pleistocene period. But it is very difficult to determine when the sea ceased to exist. Most probably it was long before the advent of the Vedic Aryans and their settlement in the plains of Hindustan. The evidence of the vedic hymns dispel any idea of an inland sea. Nowhere do they speak of an inland sea, nor do they contain any reference to a cataclysm, which might have raised the land and expelled the water. The whole region of advance was dry land, which came to be appropriated and was covered with the Aryan Settlements. Within recent times no great changes have taken place, only certain rivers, especially the Indus, have changed their courses, the area at the mouth of the delta has received some accretions, owing to the

deposit of silt, or here or there the coastal area has varied, either owing to the receding of the sea, or to the erosion of the coasts. The general slope of the plateau is from west to the east while the greatest elevation is in the southern angle where lies the high and high and elevated state of Mysore. The coastal region attached to the plateau forms a distinct portion by itself. Its elevation is very small in comparison with the plateau.

River System

The Indian continent owes much to the great river systems, which supply it with water, add to the fertility of the soil and thus lessens the toil of the agriculturists. In the Gangetic plain there are two distinct river systems. The one which is probably the older is that of the Indus which rises in the hills to the north of the Himalayan chain and after passing in a North Westerly direction for 800 miles turns southward; it is then fed by the water of regions which vary in altitude from 10,000 to 18,000 feet. The main tributaries of the Indus are the Sutlej, the Beas, the Ravi, the Chenab, the Jhelum, while the Kabul river which joins it near Attock draws water from the regions beyond the frontier, whence come smaller affluents like the Kuram, with the Tochi and the Gomal. Later on it passes through the plain of the Punjab and falls into the Arabian Sea. The hymns of the *Rigveda* show a familiarity with the Indus river system. Not only is the Indus repeatedly mentioned, but the names of the tributaries figure prominently in connection with the advancing Aryans. Not only are the Śutudri, Aśikni, Paruśnī or Irāvatī, mentioned but we have repeated references to the Kubhā (Kabul) the Krumu (the Kurum) and the Gomatī (the Gomal).

Apart from this Indus system of rivers, we have two other systems, which though take their rise in the North region, flows for a time in different directions and after a junction in Eastern Bengal fall in to the Bay of Bengal. The Ganges which is formed in the hill region of Garwal, by the junction of the Alaknanda and Bhāgirathi passes in a south easterly direction. From the North it

receives the waters of the Rāmganga, the Gumti, the Gogra, the Gundak and the Kusi. From the South it receives the water of the Jumna and the Son. After passing the Rajmahal hills the Ganges turns South East and its main course is diverted into two channels. One continues eastward and becomes the Pudda, after its separation from the Madhumati to the South of Pabna. The other passes directly South below and after receiving the waters of feeder rivers becomes the Rughly near Calcutta. Like the Indus the Ganges too is mentioned in the Ḥgveda repeatedly along with the Jumna. In the later samhitās, in the Brahmanic and post-brahmanic literature is scared character is repeatedly inculcated upon. The other great river of Eastern India is the Brahmaputra which takes its rise in the region of the Manassarovar and after passing in an easterly direction for 700 miles takes a South-westerly course through the Assam Valley and after various changes joins the Pudda; and the united waters of the two pass into the Bay, through the Pudda and the Arial Khan. In the Deccan and the Peninsula, two river systems are noticeable. The one comprising of the Narmadā and the Taptī falls into the Gulf of Cambay. The other system comprising of four almost parallel rivers all flow in an easterly direction. They are the Mahānadi, Godāvari Kṛsnā, and the Kāverī.

Indian Coast

For the greater part of its length the Indian coast is almost uniform and regular. There are few indentations, and consequently India is very poor in naturally protected landlocked bays or harbours. Only a few of them exist on the Western Coast, while in the East the coast is practically devoid of safe anchorages. At the present time we have only a few harbours of importance *e.g.* Karachi on the mouth of the Indus, Bombay, Goa and Karwar on the West Coast, Tuticorin in the South, Madras and Pondichery on the East coast, the river port of Calcutta in the Delta region and Chittagong in the East. In ancient times however when the size of trading vessels was not so huge as in our days, a large number of fair-weather anchorages were available. Thus in the 5th Century BC we

have distinct historical evidence which goes to prove that the ports of Broach and Surat (Bharu-kaccha—and Surāṣṭra or Suraṭṭha) were great centres of maritime activity. Later on we have accounts of the great importance of the ports of Suppara on the west and of Tāmralipta in Bengal which had by the 5th Century BC become the port of departure for vessels going to Ceylon and the Archipelago. So also in the days of the Perilplus and of Ptolemy were Suppara (Suppāraka) and Calliena (Kalyan, a few miles to the north of Bombay harbour,) Melizigara and Byzantium (described as a fine harbour). Further south lay Muziris, Nelcynda, and Bacare (Porcad) and Colchi (korkai) in the Chera and Pāndya kingdoms. Even in the east coast lay a large number of Ports and safe-weather anchorages, whence the Pandyan and latter on the Chola maritime adventureres started to the islands of the Indies either for conquest or for trade.

The mariners of ancient days moreover took advantage of the surface currents or drifts which even now affect the coasts of India. They utilized also the monsooner winds, the importance of which has now been reduced to their rain-bearing agency. These surface currents which now run along the West coast from North to South, and vice versa, on the Eastern side, during the South-West monsoon, facilitate the coasting trade. During the North East monsoon the current was reversed. The mariner took advantage of both during the respective seasons for his outward journey and for his return home.

Next to these currents and drifts of the sea, the monsoon wind is of great importance. The monsoon wind current was of great service to the trader of ancient times. The South-western monsoon, helped the journey from the African coast or other countries to the West India. It also helped the mariners of India who engaged in trade with the Eastern Archipelago, while the North East monsoon facilitated a return journey. According to Pliny, the existence of these air currents was discovered so far as the Graeco-Roman world was concerned, by the Greek sailor Hippalus, and this contributed to the growth and the volume of their trade with India. The Indians however seem to have known it centuries ago, and utilized these

winds to facilitate the journey of their sailing vessels. The monsoon wind brought as it brings in our own days the charge of moisture which converted into rain, helped the agriculturist who devised his seasons for ploughing and sowing, accordingly.

Character of the Soil

The soil of India, which has not changed much with in historic times varies considerably in the different regions. Generally in the plain of the North it consists mainly of alluvial deposits. Geologists believe th at the whole plain has been produced by the deposit of the fine rock crumblings brought down by the two great river systems. In the region of the Delta the soil is entirely clayey, with very little rocky matter in it and is black in colour. While in the plain of Hindustan, the soil, contains rock crumblings and mineral matters.

In the Deccan, the soil varies considerably. In the so-called Deccan Trap, which contains by far the so-called black cotton soil, it is mainly basaltic rock, and is supposed to have been of volcanic origin. This soil is dark in colour, very fertile and its water-bearipg capacity is very great. This covers the whole of the North Western part of the Deccan and embraces two thirds of Kathiwar. In other parts of the Deccan and a part of the tract to the north of Kathiwar, the soil consists of hard crystalline Archaean Rock. The soil here is light and porous. The rain enters easily and is passed away to the subsoil. In addition to these there are regions where the soil is sandy. This is the case in a large part of the region to the South of the Indus Valley. A large part of Rajputna is sandy desert.

Forests

Forests exist even now in large tracts of India. At present the forest areas, include a large part of Tarai Region, the Assam Valley, the Sunderbands, and a large part of Central India and Chota Nagpur. In ancient times the forest area was much larger. In fact the early inhabited settlements were but islands in the midst of the forest. The Vedas speak of forests repeatedly. In the Buddhist literature we hear of the Mahā-Kalinga forest to the west of the Orissa sea coast. The Rāmāyana, describes the forest region to the

cast and south of Mithila which was then the home of savage enemies of the Aryan race. Pañchavati and practically the whole southern region was dense forest in those days. A large part of the Mahratta country formed till a very late period the celebrated Daṇḍakāranya, which was cleared only in historical times. The region of the Vindhya hills too was covered with forest and we have innumerable references to the state of affairs in the forest regions in Indian literature and only in recent historical times they have been partially cleared. These forests of India are of great economic value, and even now the Government derives a large revenue from them. In ancient times they were of great service to the people. The forests supplied the early builders with timbers to build their houses with. The Sal (Shorea robusta) the sisoo (Dalbergia Sisoo), the Black wood of Malabar the Deodar, and the Pine, were of great service to men.

In Malabar the Sandal wood grew wild and it was largely exported to the other countries of the ancient world. A large number of other forest products were also valuable. Thus the *Myrobalam*, furnished tanning material. The Bamboo,—the giant grass, supplied building materials to the poor. A large number of forest trees and shrubs were utilized for their medicinal properties. Canes, and creepers were used for basket making. Smaller trees furnished fuel in an age when coal was unknown. The high economic value of the products of forests, was recognised by Indian princes, and as early as the 4th Cen. BC the forests came to be regarded as state property. State Officers not only collected the timber, and other produce, but established manufactories for producing various articles of use. The wild animals too were state property. Game laws were introduced and indiscriminate hunting forbidden. The elephant was used in war. The skin of ferocious animals was collected. The deer was hunted for its flesh.

Crops

The fertile soil of India is capable of bearing large crops of food-grains and other useful plants. We have evidences to prove

that a large number of such plants was either native to the Indian soil or came to be cultivated from remote antiquity. The following are the chief among these:

Rice: (Oryza Sativa), which now practically forms the staple food of the people of many provinces of India, was indigenous. De Candolle thought it to have been cultivated in China as early as 2700 BC. Its chief wild habitat extends from South India to Cochin China. Lyall seems to believe in an early cultivation of rice in India and compares its foreign names, *e.g.*, Persian Virinzi, Arabic Aruzz, and Greek Oryza, with the Vedic Vrihi.

Wheat: (Triticum Vulgara.) The history of its cultivation goes as far back as the Vedic period though some scholars deny mention of it in the hymns of the *Rigveda*. De Candolle thought its cultivation to have been pro-historic and almost | general throughout the pre-historic centres of civilization. Heer found it in the remains of the habitations of the lake-dwellers of Switzerland. Unger found it in an Egyptian pyramid of 3400 BC. Philological evidence proves its knowledge among almost all the ancient nations. Probably its cultivation was introduced by the Aryan immigrants who found the soil and climate capable of producing it.

Barley: (Hordeum Vulgare; Sans—yava, Old Per.— yao.) To this plant which is one of the earliest to be cultivated by man, we find the earliest references in the *Rigveda* which contains the word yava. Some scholars have taken it in the sense of grain in general. The cultivation of Yava, which has been identified by De Candolle with the Indian Hexastichum variety is even now carried on in large areas of modern India.

Millets: At present the chief millets grown in India are the Jowar Cholum, the Cumboo or Bajra and the Ragi. All these, which require much less water than rice or wheat, seem to have been extensively cultivated from an early period. Regarding the sorghum vulgare there exists some doubt as to whether it was indigenous to India. The case of some other varieties of millets (Miliaceum) is not so much open to doubt. As to the Ragi, Watt says: "There is

perhaps no doubt that as a cultivated crop it originated in India" (Ragi—Eleusine Coracana).

Pulses: A large variety of pulses, too, was cultivated even in the earliest mes. It is difficult to find out whether they were indigenous to India, but there is no doubt that their cultivation goes back to the period of the Samhitās other than the *Rigveda*. These latter mention the Mudga (Phaseoluts Mungs), Māsa (Phaseolus Radiatus), Masura (Ervum Hessutim), Kulattha (Dolichos Oliflorus).

Fibrous Plants

Next in importance to the food-grains, we have important fibrous plants. These were of great service to humanity since they supplied man with materials for clothing and thereby protected him from the extremes of heat and cold. In India, not only do we find a large number of such plants but most of these seem to have been indigenous to her soil where they were earliest cultivated and whence the world learnt their use. Chief among the fibrous plains of India are the following:

Cotton: Pre-eminent among the fibrous plants is cotton which was indigenous to India and from her soil, its knowledge and cultivation spread to the rest of the world. This would appear from the fact that the name of this plant has been borrowed by all the nations of antiquity from India. Thus Sanskrit karpasa became kapas in Hebrew, (and this word was used to designate the green hanging, in the book of Esther) and carpasos or carbasos in Greek and in Latin. The earliest Greek information about this is furnished by Ktesias, and later on by Theophrastus and Herodotus, whose way of describing it as the wool of trees, showed Greek ignorance about it. We have no information about its cultivation elsewhere—not even in China, where it is believed to have been first cultivated in the 13th Cen, AD; Neither in Egypt, though Lassen once supposed the Mummy cloth to have been cotton, but this has been refuted by Mr. Thomson the kew expert (J.R.A.S. 1898 p. 250-51).

The earliest mention of cotton is in the Aśvalāyana Śrauta Sūtra (VI. 4. 17.). The absence of the word kārpāsa in the Vedic

literature proper may be explained by the fact that the Aryans had not by that time reached the cotton producing districts in the South or in the East. White cotton, Simula or cotton silk (Erodendron anfractuosum). Though doubtfully indigenous, its cultivation goes to the Vedic period and it has been since then of great service as furnishing material for pillows mentioned in the Atharva Veda. Śaṇa was also probably indigenous to India and its cultivation goes to the earliest historical period, It is mentioned in the Atharva Veda, (II.4,5). as growing in the forest. It is also mentioned in the Śatāp B r. (iii-2-l-11, 1-6-1-34) and in the later sūtras.

Linen: (Linum usitatissimum) its cultivation and use seem to go back to the Vedic period. Its various names are Atasi, Uma and Kṣauma. Susruta also speaks of the medicinal properties of atasi oil. Later authorities repeatedly mention it.

Jute: (Corchorus) Variously called by different authors Identified by some with Sk. Patta, or Kālaśāka. originally indigenous to India and parts of China, its cultivation all throughout historic period has been mainly confined to Bengal.

Sugar Cane: Of plants producing sugar the sugarcane has been the chief of a number of varieties. It has been an important indigenous plant. According to Watts at least five such grasses were natives of India, one of the chief among them being the Saccharum officinarum which is mentioned as early as the *Athava Veda (*I. 34. 5). Sugar from the juice of this plant was pre-eminently an Indian commodity and there is reason to believe that the rest of the world derieved their equivalent of sugar from the Indian Sarkarā (compare Arabic Shakar, Latin Saccharum, French Sucre, Eng. Sugar).

Of oil bearing plants which have been indigenous to India, or have been cultivated since the remotest historical period are the following:

Tila: According to Sir George Watts it may be regarded as indigenous to India. It has been cultivated from the earliest times being repeatedly mentioned in the *Atharva Veda* (A. V. II. 8.3) XII. 2. 54; XVIII. 3. 69, XVIIL. 4. and in other Samhitās. In the

historical period it was regularly exported from India, its importance being due to its oil.

Castor: Probably a native of India from the earliest times. Its cultivation goes back to the later Vedic period, being first mentioned in the Sānkhy. Ar., XII. 8. Śuśruta mentions the medicinal properties of its oil.

Mustard: Important for its oil and for medicinal and other properties. Specimens of it are found elsewhere in the world but it may be regarded as a native of India. Its cultivation too goes back to the close of the Vedic period, and is first mentioned in the Brāhmana literature (Chandogya, III. 14-3. Sadvim Br., V. 2. Sāñkhāy, Śr. Su, IV. 15. 8).

Mahua: Valued even now, for its oil and its use as food. Its medicinal properties are mentioned in Suśruta, Caraka and other works.

Cocoanut: It is indigenous to a large part of the Tropical region. In India, it has been a native of Malabar, S. E. coast, and Bengal. Its importance has been very great and it has been repeatedly mentioned in early literature.

Of spices and aromatic plants we may mention the following The cultivation and importance of these is mentioned in the historical period. Some of these plants were natives to the Indian soil, while a large number of them was brought from the neighbouring islands, by the adventurous Indian sailors of antiquity.

Pepper: Lassen derives its Greek name peperi and Latin name peper from the Sanskrit pippali. It was extensively cultivated in the west coast of Southern India from the earliest times. According to Schoff, (Periplus p. 213-4) its use was unknown to the Egyptians and Hebrews and it was the Dravidian merchants who carried it to the westerners. It was an article of export to the Western market and its trade brought unheard-of profits to Indian merchants. According to Pliny, 15 denarii were offered for a pound of pepper (Pliny XII. 14). Alaric demanded 3000 Ibs. of pepper along with gold and silver for raising the siege of Rome.

Cloves (Caryophyllos aromaticus): Its mention in Indian Literature goes back to the days of the Rāmāyaṇa and Caraka. Its name, derivable from Malaya Leh-bang, suggests according to some authorities that it was brought from Malaya. The historian Paulus Eginata states that it was brought to Rome from India.

Cardamom (Eletaria cardamonom): It is believed to have been indigenous to Southern and Western India where both varieties, major and minor, grow wild. It was also an article of export to the Western markets.

Cinnamon: It is doubtful whether it was originally native of India. In historical times, however, it was brought from the Islands, cultivated and exported.

Saffron (Crocus Sativus): Probably, not a native of India but of the region of south-western Europe; its cultivation is now confined to the valley of Kashmir, so far as India is concerned. This can be traced back to the post-Vedic period. Kunkuma is mentioned in the Suśṛuta Samhita, and in some other medical works where, we find its medical properties described.

Costus: Root of Saussuarea Lappa, native of Kashmir and north-Indian hills, is mentioned as early as the *Atharva Veda* (Kuṣṭha). Not to speak or its medicinal properties it was highly prized by the Romans as a culinary spice and as a perfume, and was exported to Rome from India (Pliny, XII 25.)

Spikenard: A perennial herb of the Alpina Himalaya, it was probably introduced in India proper, from the hilly regions where it was grown. Its earliest mention is to be found in the medical literature of the Hindus Nalada or Naladi is mentioned in the Vedic literature (V. I. i, 437.) The Atharva Veda mentions Aja-śṛngi, Araṭaki and Tikshna-śṛngi along with these aromatics.

Nard (Nardus Indicus): Leaf nard was exported from India to the Roman markets, and was sold at the rate of 40 to 75 denarii per Ib. Spikenard held the foremost place among the ointments of the day. (Pliny, XII. 26, also Mark XIV; see Schoff's note on the *Periplus*, 188-189). So also was Khuskhus (Vetiveria odorata) important for aromatic properties.

Ginger (Zingiber efficinale): It was also a native Indian product, and from India its use probably spread to some other nations. This would appear from philological evidence, which shows that the name of this plant in many languages is derived from its Sanskrit equivalent. Thus, Sanskrit Śṛngivera, becomes Zazabul in Arabic and Zingiber in Greek. The word Sringibera has been supposed by some to have been of Dravidian origin while others would like to regard it as a hybrid of Skt. Śṛnga and Drv. Vera meaning root.

Turmeric (Curcuma, Haldi): It was grown in India from earliest times and many nations learnt its use from the Indians. Thus Sanskrit Haridrā is transformed into Persian and Arabic Al Hard.

Colour-Bearing Plants: Of these, the chief in antiquity was Indigo, identified by De Candolle with the Nīlī of classical literature. Most probably it was an indigenous plant of the Indian soil, though many varities of it exist wild in the tropics. We have no evidence to prove that any other country grew this plant in antiquity; and hence the ancients called it Indicum. It was valued in the western world for its rich colour and medicinal properties and was largely exported to the western markets (Pliny XXXV, 25-27). Its supposed presence in the cloth of the mummy led Royle to suppose that trade relations existed between India and the land of the Pharoahs in the 3rd millenium BC. The presence of Indigo has been chemically tested and proved to be beyond doubt (J. R. A. S. 1898, p. 250). In the Periplus, it is mentioned as exported from Bar-baricum (Schoff's note, see p. 172-3).

Sandalwood (Santalum album): Another important Indian plant was the Sandalwood tree, a native of the hills of South-Western India *e.g.* the regions of Mysore, Coorg, and the Nilghiris. From a very remote antiquity, sandalwood was exported to the markets of the ancient world. It is supposed by some, scholars that the 'Sonter' incense mentioned in the records of the naval expedition to Puanit in the reign of queen Hatsep-situ of Egypt is nothing but Malabar Sandal wood (Santalum album).

Fruit-bearing Trees and Plants: Other important Indian plants include varieties of fruit-bearing trees and plants. Of these, we may

mention the Mango tree (Mangifera Indica), the Jack-fruit tree (Artocarpus Integrifolia), Plums (Prunus etc.), various kinds of apples and nuts, varieties of Palm, including the arica and date palms, the plantain (Musa Sapienlum) Grapes and varieties of orange, citron and varieties of melon. The cultivation of grapes goes back to a period anterior to the 7th cen. BC. Grapes are mentioned in the Sutras of Pāṇini, which speak of Kapisā being the premier vine growing district of India. The vegetables indigenous to India vary in its different parts and are too numerous to relate. Varieties of sweet and bulbous roots too existed from the earliest times. Along with these must be mentioned two other Indian products of importance *e.g.* the silk worm and the lac insect.

Silk: It is very difficult to trace the introduction of silk in India. Silk-worm was cultured in China as early as the 28th cen. BC and according to some historians, a Chinese princess married to a Khotan prince, secretly carried with her the silk-worm and the Mulberry plant. Some scholars attribute the introduction of silk in India to an intercourse with China, of which, there is reason to believe, the earliest evidence goes back to the 6th Century BC There is however evidence to prove that varieties of the silk-worm, existed in the Eastern part of India *e.g.*, in North Bengal and Assam, and these regions are a continuation of the habitat of the silk-worm.

At present, the following three varieties of silk Saturniidae *e.g.*, wild silk, exist in Eastern India *e.g.*, the Tasar (Antheraea paphia) mainly of Bengal, the Antheraea assama (Muga of Assam) and the Attacus ricini Eri). Most of these depend on nature and hardly require any human care. We have references to the large use of silk from the seventh cen. BC Śilk is mentioned in the Sutras of Pāṇini, in early Buddhist Literature (Koseyam), and in the Kautiliya Arthaśāstra which mentions indigenous silk fabric along with the produce of China (Cĩnapaṭṭāh and Cina-bhumijāh). Various plants suitable to the growth of the worm existed from time immemorial.

Lac Insect (Tachardia Lacca): The lac insect was endemic in India and even now is confined to her soil. Lākṣā occurs in Vedic

literature, being first mentioned in the Atharva Veda. References to Lākṣā are numerous in the Sūtra literature as well as in the Epic and poetical works.

Economic Considerations about the Fauna

The animals of India both domestic and wild are numerous and varied. India was blessed with the soil and climate capable of bearing animals useful to man.

Cattle: At first the mass of Indian population was pastoral. They paid great attention to the growth and improvement of cattle, which formed their chief wealth during the Vedic period. The cattle wealth of the Punjab has been very great even up to our own days. As in our days, sheep and goats were reared on large scales. The wool-bearing sheep of the Gandhāra and the Parusṇi districts is repeatedly mentioned even in the *Rigveda*. Later on, the Himalayan regions became the chief source of wool. Sheep and goats were largely used for food. Wild goats were common. Horses were common in almost all provinces, though in Indian literature those of the West and North are praised. This condition prevails even now. The domestication and use of the horse was extensive even in the Vedic period. They were used for riding and transport purposes, both in peace and war. Asses and mules were also kept and used for various purposes. Horse-racing was an important amusement. Camels were either natives of the desert regions or brought into India at an early date. Even in the Vedic period, we find them drawing wagons or bearing burden (A.V., XX. 127, 132). Buffaloes were used for domestic purposes. Like cows they were domesticated in the pre-vedic period. Apart from milk bearing, their flesh was used for food. The taming of elephants was complete in early Vedic times or even earlier. They were used in war, and also for other purposes.

With wild animals, we are not so much concerned, though, as a matter of fact, the early settlers found it very difficult to hold their own against the lion, tiger, panther or leopard, bear, wolf, hyaena, jackal, with boar, tusked elephant, rhinoceros, and wild buffalo. In

course of time these ferocious enemies were put down. The skin of animals was used for household purposes, the wool of some was made into blankets, while the flesh of the deer, boar, goat, and even of the rhino was eaten. The think hide and horn of the rhino and the tusks of elephants were used for various purposes and exported to the markets of the West. The tail of the yak was made into chauries while from the musk-deer was extracted the aromatic substance known as musk moschus moschiferus).

Fishing: Another asset of nature has been the excellent and abundant supply of fish from the rivers. Even now the supply seems to be inexhaustible. Fish-eating in all the provinces, especially in the east, gave an opportunity to many to earn their livelihood by fishery and even in the Vedic period fishermen formed a caste.

Pearl-Fishery: Oyster pearls are found in many Indian rivers not to speak of pearl-beds on the sea coast. From an early period pearl-fishery on the coast of Ceylon and the eastern coast of Southern India was a profitable business. The India pearl found its way to the western markets and fetched a high price.

Minerals

India at present is regarded as considerably rich in minerals. She is found to contain not only large quantities of Gold Copper and Iron, but also Coal, Manganese and Mica in abundance. Owing to the lack of effort on the part of the people and want of the up-to-date machinery and organisation, she is not in a position to take the place she deserves among the industrial nations of the world. In ancient day, when neither the use of coal nor that of many other metals was known, she was considered to be rich in mineral resources. Her people learnt the use and the method of extracting various metals and we have even now the remains of the earliest mining centres. The Vedic inhabitants used gold for various purposes, the metal being obtained mainly from river washings. Later on, other centres of the gold bearing quartz were discovered mainly in Southern India. Towards the close of the Vedic period, the Aryans became familiar with zinc, copper, tin, and lead in addition to gold, silver and iron.

The Greeks, when they came to India, were struck with the mineral wealth of the country. Megasthenes says (Frag. 1) that "While the soil bears on its surface all kinds of fruits known to cultivation, it has also underground numerous veins of all sorts of metas for it contains much gold and silver, and copper and iron in no small quantities and even tin and other metals which are employed in making articles of use and ornaments as well as the implements and accoutrements of war." Several later authorities speak of the presence of silver mines in India, which is corroborated even by Moslem writers.

Copper too was extracted in various localities. Iron found in large quantities and from it was made excellent steel, which found its way to the land of the Hebrews, Syria and Arabia, as we shall see later on. As regards iron, India is now-a-days regarded as very rich, and laterite, haematite magnatite ores are found in abundance. Of the sources of other metals mentioned in early Indian literature, we have but little information e.g., Mercury, Tin, Lead, Zinc; probably there existed mines which are now no longer worked. Sulphides of Antimony and Arsenic were found in large quantities, and are even now abundant.

Precious Stones: India is and was rich in precious stones. Diamond mines existed in India but they are now supposed to be exhausted. Sapphires, and Topazes too were found in various places and varieties of precious stones were exported to the western markets. We shall speak of them in detail later on.

Salt: Salt mines exist in many places in India. In ancient days, salt was extracted from sea water, mines of rock salt, and from salt lakes. The output of salt mines on the Punjab border or of the Samber lake supplies the needs of more than half of India. In the days of the Mauryas salt mining was a government monopoly. Alkali deposits of crude potash and salt-petre existed and are found even now in various places in India.

New Settlement and Material Advancement

It is difficult to determine even to a degree of approximation the date of the advent of man in a country like India, so favourably

situated and provided with the bounties of nature. We have no history of the races of men who dwelt there, until we come to the accounts of the settlers with whom the intellectual and material advancement of the country is so closely bound. The advent of the so-called Aryan settlers (cir. 3000 BC) is a mystery and still more, the circumstances of their progress and advancement. They spring into our view all on a sudden with a highly developed civilization, and with an amount of culture hardly inferior to that of any of the contemporary sections of mankind.

Previous to the Aryans, various races of men dwelt in India, Pre-historic archeology records the existence of man in the Palaeolithic and Neolithic ages. Records of the palaeolitihic period as also of the succeeding age are however very scanty and ossiferous caves bearing the remains of primitive men are very rare. Hacket found an ovate instrument of chipped quanzlte at Bhutra lying in undisturbed post-tertiary gravels, and containing the bones of *Hippopotamus Namadicus* and other extinct animals. Similar primitive instruments, of ągate, quart-zite or laterite have been found by Wynne, Bruce Foote, Carlleyle and other scholars in various places of Northern and Southern India.

Neolithic: Remains of the Neolithic period are greater in number and the labours of indefatigable scholars like Bruce Foote, Cock-burn, and Carlleyle have been rewarded with such finds all over India, though such remains are scantier in the Punjab and Bengal. They consist not only of stone implements, early pottery, and other dug-out remains from mounds which are presumably the sites of neolithic communities but also of ruddle drawings (Cockborns, 1899: 94). Of the first, we have innumerable specimens found throughout India in the shape of flint knives, hammers, and broken celts of various types. Of the second class we have in the records of Bruce Foote an account of neolithic settlements and even of implement factories. According to the same author, the Circular cinder mounds in the district of Bellary represent the remains of neolithic age. Apart from these implements, we have sepulchral remains of the neolithic period. Not only do we have human

skeletons in various detached graves, but also have innumerable sites, which seem to have been the burial places of ancient communities. They are numerous in Southern India and are in themselves objects of close study.

The above evidences as regards the paleolithic and neolithic men are but of little interest to the student of economic history, though they help us in solving greater problems connected with the early history and distribution of mankind. As we leave the Neolithic period and come to the age of the use of metals, we meet with evidences which throw light on the factory of the culture of races, who dwelt in the various regions of India in comparatively recent yet pre-historic times.

The Age of the use of Metals

Copper Age: During the age immediately succeeding the neolithic period, India seems to have been peopled presumably by a race or races of men who were not only acquainted with the use of metals, but had attained a high civilization. Next to the races, who had attained the neolithic culture there came a race, who though not familiar with the use of bronze, seems to have known the use of copper and some other metals, and it is inferred by many that the use of copper intervened between that of stone and iron. This is the view of the late Dr. V.S. Smith, whose article on the Copper and Bronze implements in India appeared in 1905. His theory is based on an examination of the finds in Gungeria in Central India in 1970. The finds consisted of a large number of copper implements including some bar celts two feet long and a number of silver plates and animal figures weighing 8lbs. The bar celts resembled those of Peruvia, Babylonia and Eeypt. Dr. Smith summed up as follows: — "A remote date must be assigned to both the copper tools and the silver ornaments. The Irish celts many of which are identical with those of Gungeria specimens are assigned to period 2000 BC."

More important information is furnished by those sepulchral remains, which are so common to the Madras Presidency. These, which are of various shapes and patterns, furnish us with data and

help us to reconstruct the history of well developed civilization, of which records are now lost. Thus we have specimens of cairns or mounds which contain the remains of men of a past age. Megalithic tombs too are very common in many of these southern districts. In some cases there are kistvaens, in others more commonly Dolmens or Cairns. These South Indian graves of the Pre-historic period differ from those found elsewhere in the world. These sepulchral monuments have been studied in detail by various scholars. Those of Coimbatore were studied by Walhouse, those of Tinnevelly by Mr. Rea, while an account of the graves near Pallavaram was given by Surgeon General Biddie who visited the spot in 1886. The Coimbatore Monuments which fall into two important groups (*e.g.* those near Nallampatti and those near the Malabar border) consist of chambers, formed of enormous slabs, covered over with cap-stones, over which were placed heaps of black stones often rising up to 30 feet in height. The larger cairns are surrounded with circles of upright stones. Those of Tinnevelly differ slightly in their outward appearance while those of Malabar called Topekals, form a distinct group.

All these sepulchres contain terra-cotta sarcophagi of different patterns. In some places they are oblong, in other places pyriform, while those found in Tinnevelly are enlongated globular pots of thick red earthen ware. These sarcophagi bear resemblance to those found elsewhere The oblong specimens are identical in form with those found at Gehrareh near Bagdad, showing an archaic connection of the raceś of these two different localties in pre-historic times. Apart from the sarcophagi patterns, the contents are of great importance. They seem to be the remnants of an advanced type of civilization, which flourished in pre-historic ages, and they do not betray any vestige of palaeolithic or pre-lithic cultures.

The Coimbatore finds included fine pottery, iron implements such as knives and spear blades, as also human bones. Those of Tinnevelly as examined and studied by Mr. Rea were of greater importance. They included fine pottery, iron implements and weapons, vessels and personal ornaments of bronze, lamps of iron,

stone-slabs, household stone implements, traces of cloth and wood, quantities of mica, swords, tridents, lances, axes, spears, arrows, daggers, mostly of iron, ornamental vase-stands, bowls, cups, grotesque Images of the cock, bangles, necklaces, scent-bottles of bronze diadems of gold, bearing close resemblances to those of other places, and a ring of iron covered with gold plating (found at Vallanad). A number of urns contained husks of rice and millets. We have moreover, representations in metal of domestic and wild animals. Of these letter we have the figures of the buffalo, goat, sheep, cock, tiger, elephant, and antelope. To sum up, these remains evidently belong to a race of men who were skilful in moulding pottery, in casting or brating metals, in weaving, in working stone and wood, with a considerable artistic skill and possessing a good agricultural knowledge. Rea thinks that their religion was perhaps devilworship as evidenced by their various sacrificial implements similar to those used in that worship.

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The Economy of the Indus Civilization

The economy of the Indus civilization was based on animal husbandry, particularly of zebu cattle, and on arable agriculture, growing cereals, pulses, and other plants. These were supplemented by the exploitation of wild resources, such as fish. Pastoralism and agriculture differed in their relative importance in each of the great diversity of environments that composed the Indus realms: In the valleys and plains of the Indus and Saraswati Rivers, their tributaries, and other smaller rivers mixed farming was highly profitable; rain and other local water resources also supported farming in other regions, such as Baluchistan, sometimes with the help of irrigation. Animals were taken at certain times of year to graze on the expanses of seasonal pastures in Gujarat and Punjab and in the uplands of Baluchistan. Coastal settlements took advantage of marine resources such as shellfish, which provided not only food but also shells, an important resource for making ornaments.

The archaeological evidence for Indus agriculture is extremely patchy. The preservation of plant remains is often poor, depending on local conditions, the type of plant, and chance. Whereas cereal cultivation has left evidence in the form of carbonized grain and impressions of stalks and grains in pottery and bricks, and pulses

also preserve well, roots and tubers and many fruits and vegetables produce few or no hard parts that survive as archaeological traces, so evidence of their cultivation is rare. This problem is compounded by variations in the standards of recovery in archaeological excavations and by problems of identification.

AGRARIAN ECONOMY

Agriculture in the Mature Harappan period, as in its antecedent cultures in the Indo-Iranian borderlands, was based on wheat, barley, pulses, sheep, goats, and cattle, the same assemblage of crops and animals as the cultures to the west in the Iranian plateau, southern Central Asia, and West Asia, most of which had originally been domesticated in West Asia. Each region of Asia had other local plants and animals, notably zebu cattle in South Asia. With a few exceptions, such as sesame and cotton in South Asia, the crops followed a regime of autumn sowing and spring harvest across the entire region from Anatolia to central India: This is known as rabi cultivation in South Asia. Around the early second millennium, however, major new crops were added that required spring or summer sowing and autumn harvesting: kharif cultivation. These crops were to set the pattern for agriculture over much of the subcontinent in later times; although rabi crops have continued to dominate in the northwest, and in many regions both rabi and kharif crops are grown.

Crops Cultivation

Rabi Crops: Wheat and barley were the staple cereals of rabi cultivation. The Harappans cultivated various types of wheat: a little emmer and einkorn, along with three kinds of bread wheat, of which shot wheat (*Triticum aestivum sphaerococcum*) was the most common in the Mature Harappan period. Barley was more important than wheat at some sites, including the Indus outpost at Shortugai on the Amu Darya and the Baluchi site of Miri Qalat. The Harappans grew three or four varieties of barley, including both naked and hulled types. This range of crop varieties allowed them to exploit

the different properties of the various types of land suitable for cultivation. At Rojdi in Gujarat, barley was very poorly represented in the extensive collection of botanical remains and was not cultivated after period A (2500-2200 BC), and in the Kachi plain bread wheat was more important than barley. Oats (*Avena* sp.) were present at Mehrgarh in the fourth millennium and have also been recovered from Pirak and Late Harappan Hulas. Oats seem generally to have been present in early archaeological contexts as a weed of cultivation that invaded stands of wheat and barley, rather than being deliberately cultivated: This fits with their sporadic appearance in South Asian botanical samples.

Millets: During the third millennium, a number of indigenous cereals were brought under cultivation by the Indus civilization or by contemporary South Asian cultures. Little millet (*Panicum sumatrense*) was common at Mature Harappan Rojdi, Oriyo Timbo, and Babar Kot in Gujarat, and present at Harappa around 3000 BC, and browntop millet (*Brachiaria ramosa*) was also grown at Rojdi. A small amount of *Setaria* sp. was cultivated at Surkotada and Rojdi: This may have been *S. verticillata*, bristley foxtail millet, also domesticated in South India during the third millennium, or *S. pumila*, yellow foxtail millet, both native species. Foxtail millet (*Setaria italica*), known in the Late Harappan period, is thought possibly to be a local domesticate but was more probably introduced. It was a major crop in China, having been brought under cultivation in the seventh millennium BC, and was being grown as far west as Tepe Gaz Tavila in southeast Iran by the sixth millennium. Seeds of another indigenous millet, Job's tears (*Coix lacrima-jobi*), have been found at Harappa and at the contemporary Ahar-Banas settlement of Balathal, in both cases as beads, a common use for these seeds.

Broomcorn (or common) millet (*Panicum miliaceum*) was probably brought under cultivation in southern Central Asia (as well as in China) and might have reached the Indus civilization via their trading outpost at Shortugai, which was situated in the region adjacent to southern Turkmenia, where broomcorn millet was an

important crop. A wild ancestor of broomcorn millet exists in South Asia, so it may alternatively have been a local domesticate. Several species of *Panicum* were present at Rojdi, and it is possible that broomcom millet was among them. The first certain occurrence of this millet in South Asia is at Pirak, in the early second millennium.

During the early second millennium, a number of plants of African origin appeared in Gujurat and were incorporated into the range of crops grown by the local Harappans. These included three kinds of millet: jowar (sorghum or Guinea corn. *Sorghum bicolor*), bajra (pearl millet, *Pennisetum typhoides*), and ragi (finger millet, *Eleusine coracana*). Abundant ragi was reported at Rojdi during the earlier part of the Mature Harappan period, from about 2500 BC onward, as well as possible ragi phytoliths in bricks and sherds at Harappa, but its presence this early is unlikely. Dorian Fuller (2001, personal communication), an archaeobotanist with a detailed knowledge of South Asian plants, cautions that it is likely that some claimed occurrences of ragi are based on a misidentification of *Setaria* spp., *Echinochloa colona* (Sawa millet), or *Brachiaria ramosa* (browntop millet), all native South Asian millets; a native weedy grass (Eleucine indica) was also abundant at Rojdi. Later there was ragi in Cemetery H levels at Harappa and in Late Harappan Hulas to the east, and Fuller himself has identified a grain of ragi at Hallur in South India, dated after 1800 BC.

Rice: Rice is indigenous to parts of South and East Asia, including the Indus region and the Ganges Valley. The history of its cultivation is complex and probably involved a number of different centers of domestication. Genetic evidence has recently established that rice was brought into cultivation in at least two separate areas: domestication of a perennial wild rice in East Asia produced the short-grained *japonica* variety whereas domestication, probably in several regions of South Asia, of an annual wild rice gave rise to the long-grained *indica* variety, which also spread through Southeast Asia and China. Rice cultivation began in the middle Ganges region during the third millennium and somewhat later in eastern India.

The cultures growing rice in Southeast Asia had close cultural connections with the inhabitants of eastern India, Bangladesh, and intervening regions, indicated by shared artifact types such as cord-marked pottery and distinctive shouldered axes.

Rice grew wild in Gujarat. Charred rice husks and impressions of rice husks and leaves in Harappan pottery have been found in this region, at Lothal and Rangpur. These have been studied by Naomi Miller, who has established that they are unlikely to reflect rice cultivation. Instead it is probable that rice was among the wild plants consumed by grazing cattle resulting in rice husks being present in their dung, which was used for fuel and a tempering agent in pottery. Rice husks and phytoliths have also been found in pottery and bricks at Harappa. Rice, probably wild, is known from Early Harappan Balu in Haryana and Kunal. In Swat rice appears at Ghaligai before 2000 BC as grain impressions in sherds of Late Kot Diji pottery: These may have been from either domestic or wild rice. By the early second millennium, however, rice was certainly being grown in the eastern Indus region. It was among the cultivated plants at the Late Harappan site of Hulas where both wild and cultivated *indica* rice were identified.

Other Food Plants: South Asia had a number of native pulses that were locally domesticated. These included green gram (*Vigna radiata*) and black gram (*Vigna mungo*), which were grown at a number of Mature Harappan sites and at contemporary Balathal in Rajasthan. Horsegram (Macrotyloma uniflorum) was domesticated in South India during the same period and is known from Late Harappan Hulas. During the early second millennium, two further pulses, of African origin, were added: hyacinth bean (*Lablab purpureus*) and cowpea (*Vigna unguiculata*), the latter being grown at Hulas and both appearing in South India after 1800 BC. All varieties of pulse were more important in peripheral regions such as Gujarat than in the Indus Valley heartland.

Very few other Harappan cultivated plants have been recovered. There is evidence, however, of the widespread cultivation of a species of *Brassica*, brown mustard (Indian rape), and of gourds in

the Mature Harappan period, and later of ivy gourd, while okras were grown at Balathal in the neighboring Ahar-Banas region. Jujube (ber, *Zizyphus jujuba*), an edible red berry, was known at Mehrgarh from the earliest period, though it was probably gathered rather than cultivated; this may also have been true of its later use. Melons were cultivated at Shahr-i Sokhta in adjacent Seistan and probably by the Harappans. Other fruits that may have been grown or collected locally include caper, mango, and sugarcane, and adjacent regions may also have supplied fruits, vegetables, and nuts, including cucumbers, pistachios, almonds, and walnuts, all known from sites farther west; walnuts have also been recovered from Hulas, along with the fruit of the pipal tree (*Ficus religiosa*).

Fibers: Oil could also be obtained from linseed (*Linum usitatissimum*), which was found at Miri Qalat and a number of Harappan sites, including Nausharo and Rojdi. Alternatively it may have been grown for its fiber, flax. The latter was being used to manufacture linen cloth during this period on the Iranian plateau; however, no linen has been identified from Harappan sites. There is evidence of cotton doth at Mohenjodaro and probably Harappa: The production of cotton textiles may have meant that linen was of no interest to the Harappans. Cotton may have been cultivated at Mehrgarh by the fifth millennium, though, like *Linum*, it may also have been grown for its oil-rich seeds. In the Mature Harappan period it was grown in both the Indus Valley and Baluchistan. Locally available plants, such as indigo and turmeric, were probably used as dyes; indigo is among the plants recovered from Rojdi, and the use of madder root is attested to by the presence at Mohenjo-daro of cloth dyed red with madder.

Water and Irrigation

Irrigation Works: In Baluchistan the sparse winter rainfall, though important, could not be relied on to water the crops raised in the generally limited areas of suitable soil. Water could be obtained from wells and springs in some cases, but by the early third millennium, if not before, the inhabitants of the region also developed

small-scale dams (bunds and gabarbands) to retain some of the water that flowed in seasonal streams and small rivers (*nais*) after the rains. In some cases, for example at Early Indus Diwana on the upper Hab River, a dam was designed to impound water, which could be released or channeled onto fields as required. In other cases dams and channels led the floodwater into embanked fields, where they deposited silt and provided enough soil moisture for the growing crops. One type of dam consisted of small walls built to jut out into the bed of a stream or river so that some of its water was diverted onto the ground behind the wall, depositing fertile silt that formed a small field. Settlements in the Kulli area (southern Baluchistan) seem invariably to be associated with dams; this area also received some unreliable summer rainfall.

Canal irrigation is attested to at Shortugai, the Indus outpost in northern Afghanistan at the confluence of the Amu Darya and Kokcha Rivers: A canal has been traced that drew off water from the Kokcha. This might be taken to indicate that the Indus people brought canal irrigation technology with them when they settled here; however, the Namazga culture in adjacent southern Turkmenia, from whom it is likely that the inhabitants of Shortugai acquired the broomcorn millet that they cultivated, had long experience of canal irrigation that may have inspired the inhabitants of Shortugai.

Water Supply: Unlike the situation in the mountains and foothills of the Indo-Iranian borderlands, there is little evidence that major irrigation works were used or required over most or the Indus region. Groundwater, rivers, lakes, streams, and especially floodwaters sufficed. The Indus floods in Sindh came largely and July and August, providing water throughout the summer for *kharif* crops while winter crops were sustained by the water retained in streams, channels, lakes, and dhands (seasonal lakes), supplemented by water brought down in January or February by the *nais* flowing off the mountains of Baluchistan. The Indus plains had a variety of zones suitable for agriculture. The margins of dhands and oxbow lakes, the latter formed by abandoned meanders of the Indus, allowed cultivation from year to year. The active flood plain of the rivers

provided excellent arable land, its fertility renewed annually by the silts deposited by the floodwaters, the coarse sediments closest to the river being richest in nutrients. Patches of deeper sediment reflected the unpredictable distribution of channels cut by the river's floodwaters: These had to be searched for, but they provided the best agricultural land, cultivable without plowing. In western Sindh, Lake Manchar flooded an enormous area during the inundation, and the retreating floodwaters left fertile ground highly suitable for cultivation: Today this is around 8,000 hectares in extent. While the productivity of the Indus in Sindh is very high, it is not reliable. About one year in four brings abnormally high or low quantities of water; the river floods unevenly, depending on where it breaks its banks; and it changes its course frequently. This combination of high but unpredictable productivity must have made it advantageous to develop storage practices and facilities wells tapping the high water table of the river valleys, and there as also some summer and winter rainfall.

Most Harappan farming settlements in Gujarat were located in Saurashtra. In the Mature Harappan period, these were confined to locations along the rivers and streams, and particularly along the Nal Depression, which retained floodwater through the winter months. Only in the Late Harappan period did farming settlements spread onto the moisture retentive, black cotton soils in other parts of Saurashtra, where kharif crops could be raised, watered by rainfall brought by the summer monsoon. The number of settlements in the region expanded at least fourfold in this period. Kutch, to the north of Saurashtra, was an island in the Indus period. Today the brackish subsoil water and poor rainfall provide little support for arable agriculture, but in Indus times, when a considerable flow of river water entered the Ranns, the underground water was probably sweet and could have been accessed for irrigation by digging wells.

Wells and reservoirs also supported the inhabitants of Dholavira on Khadir Island in the Great Rann. Wells here and in other regions could provide ample water for growing crops. Drawing water from them would have been a labor-intensive activity, requiring

considerable animal power, though in areas subject to summer flooding only shallow wells were needed to reach the high water table. A masonry well at Allahdino may have been used for irrigation: It was situated on higher ground, from which the water could run down to the fields. The fine examples of wells in Indus towns show the high level of Harappan competence in constructing them. In the central region, Sindh, the Indus-Ganges doab, and perhaps the western Saraswati, the floods filled numerous hollows (dhands), which for some months acted as reservoirs from which to draw water to irrigate the crops; many held water until December and some as late as February. The Indus people probably used lifting gear such as the shadoof to raise irrigation water from these and from streams and channels. One sherd of Indus pottery from Mohenjodaro bears a scratched picture of such a device, a simple T-shaped arrangement of an upright and a horizontal pole, with a bucket on one side and a counterweight on the other.

Animal Husbandry

Animals played a major role in Indus agriculture. The main domestic animals were cattle, but sheep, goats, and other animals were also kept, their relative importance relating to local environmental conditions and no doubt to other factors. Raising livestock was a useful investment against crop failure. In good years, when crop yields were high, grazing would also be good and the number of animals that were kept could be increased, surplus agricultural produce being available as fodder if the grazing ran out. In lean years, when grazing was limited, the additional animals could either be killed for food or used to obtain other foodstuffs, for example, by trading with pastoralists, by giving the animals as gifts to kin in other areas in the expectation of useful return gifts, or perhaps by exchanging them for grain stored by those in authority, though the evidence of central storage is limited and dubious.

Millets are nowadays often grown for fodder as well as for human consumption. While it is likely that the fodder needs of the Harappan domestic animals were largely met by grazing them on

natural vegetation in areas beyond the cultivated land and by taking them to areas of seasonal pasture, it is possible that some use was made of fodder crops. Charcoal evidence from the latest Harappan levels at Lothal in Gujarat gives some indication of local environmental deterioration, which may imply reduced availability of grazing, at least locally. In addition, bullocks kept for plowing were probably provided with fodder, particularly during the plowing season. In Mesopotamia, as much as one-tenth of the crop could have been used to maintain the plow team, though, of course, this amount could be reduced if, as in some South Asian villages, a single plow team was maintained by and for a whole village.

Bovids

Cattle: Cattle were the main domestic animals of the Indus farmers, their bones constituting half or even three-quarters of those found in Indus sites in Gujarat and often around half elsewhere. This set a pattern that has continued up to the present day when South Asia has the highest density of cattle in the world (182 per square mile). Cows were probably kept for their milk and bullocks for drawing plows and carts, threshing, and raising water, while a few bulls would be maintained for breeding, one bull being enough to service all the cows of a village. Bones recovered from Indus sites show that many cattle were also killed for meat: they bear butchery marks and are often burnt. It is perhaps worth emphasizing that the weight of meat obtained from a cow or bullock is very much greater than that provided by a sheep or goat: A ratio of around 50 percent cattle in the faunal sample therefore implies that the bulk of meat consumed came from cattle. Cattle dung was probably used for fuel and mixed with mud as a daub applied to wattle walls.

Both the humped zebu (*Bos indicus*) and the humpless *Bos taurus* may have been kept because both appear as figurines in the Indus civilization and in earlier and later times. Distinguishing the skeletal remains of these species is difficult, though in cases where it was possible Caroline Grigson (1984), who has examined the

bones from Harappa, concluded that only *Bos indicus* was present. It is thought likely that there were a number of different breeds of cattle in third-millennium South Asia, including smaller and larger varieties. A short-horned bovid depicted on seals may have been either the humpless bull or the gaur (Indian bison).

The unicorn frequently shown on seals is also often identified as a bovid, perhaps the humpless bull whose representation with a single horn may be due to an artistic convention (which was common in the Near East) for depicting bovids that actually had two horns. Alternatively, it may be intended as a mythical, probably composite, beast. The latter is perhaps more likely because figurines of unicorns have also been found and because the individual features of the unicorn on the seals, such as the very long horn and the pricked ear, do not match any known bovid. Alternatively, it may be a local copy of a foreign (*e.g.*, Near Eastern) depiction of a humpless bull, if this were the case it would provide evidence that the humpless bull was not present in the Indus civilization.

Bison: Another bovid that may have been exploited by the Harappans is the gaur (Indian bison, *Bibos gaurus*). Wild gaur now inhabit hilly areas in peninsular India but may also have been found in Gujarat and Rajasthan and possibly even the Indus Valley in prehistoric times. No bones from Indus settlements have been identified positively as gaur, but there are representations on a number of seals of a bovid with the short horns and shoulder ridge of the gaur.

Buffalo: Water buffaloes (*Bubalus bubalis*) were probably herded because there are buffalo bones at earlier sites such as Rehman Dheri and Mehrgarh period I, and they were also present at the Ahar-Banas site of Ahar. Bones definitely from domestic buffalo are known at Mature Indus sites, including Balakot and Dholavira. However, wild buffalo were probably also still hunted. Buffaloes occur as images on Indus seals, where they appear to be wild. Buffalo milk is richer than cows' milk, having a higher butterfat content, so it is likely that it was made into ghee. Unlike cattle, domestic water buffaloes were generally kept in or near the village

rather than taken elsewhere for seasonal grazing or used as pack animals. They require daily access to water (river buffalo) or mud (swamp buffalo, the variety present at Balakot) to keep their skins moist.

Caprines

Though cattle were the principal Harappan domestic animals, farmers also kept a few goats and sheep; caprines were also among the small numbers of livestock kept by town and city dwellers. Specialist pastoralists may have raised larger flocks of sheep and goats in some regions. Domestication in sheep (as in many species) had led to or coincided with a diminution in size from that of the wild progenitor. Such small sheep continued into Indus times, being known, for example, from Dholavira, Nausharo, and Sibri, and they were still present in Kachi sites in the second millennium. Much larger domestic sheep at Harappa, however, may show that selective breeding was taking place to increase size. Sheep were kept in far larger numbers than goats at Harappa in the Punjab, a common practice in many communities because goats are less tractable, though often a small number of goats are kept with a flock of sheep, as they are said to calm the sheep and are also useful in leading the flock to pasture. Goats, however, have the advantage of being able to browse on a wider range of plants, so they can find food in more challenging terrain: This probably explains the more equal proportions of sheep and goats at Dholavira and Nausharo, sites in relatively arid environments.

Sheep and goats were kept for meat and perhaps for their milk. It is usually assumed that sheep were also kept for their wool. There is, however, no direct evidence that this was so. Wool is present in wild sheep as a short undercoat, grown to protect against winter weather and shed in the spring. Sheep bred for longer wool appeared in the Near East during the fourth millennium and spread into Europe during the third millennium. The wool of these sheep was still molted in the spring and could be combed out or plucked from the animal or collected after it was shed. In Mesopotamia

there is both pictorial and documentary evidence of woolly sheep and woolen textiles from the late fourth millennium onward; in Europe, aside from the very rare surviving textiles, the evidence is in the form of combs for removing the wool from the sheep; flat spindle whorls for spinning wool; a change in the age and sex structure of flocks (an increase in adults, often including some wethers [castrated rams], which provide the best and most abundant wool); and a substantial increase in the proportion of sheep among the domestic stock that were kept. As far as I am aware, none of these features has been actively looked for in the Indus realms; so the question remains open. It is perhaps significant, however, that the excavators of Mehrgarh believe leather to have been the main material used for clothing in the periods leading up to me Indus civilization, suggesting that neither wool nor cotton was in use for textiles before the Harappan period.

Pastoralism

For millennia, upland and lowland areas had been linked by the seasonal movements of pastoralists, driving their flocks and herds between summer and winter pastures: Herders also moved within the Indus region itself, grazing their animals on the areas of high ground and seasonal grassland. A study of the distribution of Indus settlements shows significant clusters of towns and villages in some regions, separated by large tracts in which few or no settlements have been located despite intensive fieldwork. Pastoralists, and perhaps also hunter-gatherers, moved within these tracts, grazing their animals and providing the vital links that held together the civilization. Good pastures existed on the higher ground in the interfluve areas of the Punjab, used to graze the animals of farmers settled in the valleys of the Punjab rivers.

Pastoralists may have been separate tribes, as was often the case in other regions and as is sometimes the case today in the subcontinent. A symbiotic relationship exists between these pastoralists and Settled farmers in the regions that they visit, each providing the other with their produce. The farmers supply grain, vegetables,

and fruits, as well as stubble grazing after the fields have been harvested, while the pastoralists provide meat, leather, wool, and goat hair, as well as dung to fertilize the fields and milk products like cheese and yogurt. Similar arrangements may have existed in Harappan times. On the other hand, the ancestors of those who had settled on the Indus plains had belonged to communities that practiced transhumance in the Indo-Iranian borderlands, with a settled base in which at least some members of the community lived year-round and with temporary camps in the areas to which part of the community, probably often only the young men, moved seasonally to obtain pasture for their animals. Settled farmers and pastoralists were in this case members of the same families. Today the majority of cattle are kept by people who are primarily settled farmers, and the specialist pastoralists are mainly shepherds, keeping sheep. The modern zebu is adapted to a diet with marked seasonal variations in the quality and quantity of grazing, living today mainly on scrub vegetation on uncultivated wasteland areas. In good years the grazing and water available in the area around a village are adequate to maintain the village animals, and it is only in bad years, occurring perhaps every five to six years, that migration in search of grazing and water is necessary.

It is likely that in the Indus period there were both specialist pastoralists and farmers who spent part of their year in transhumance. In the latter case the animals belonged to the farmers and could be exploited directly, and those who took them to pasture would return seasonally to their place in the settled family. Specialist pastoralists, on the other hand, would have had an elaborate pattern of traditionally established or negotiated relationships with settled farmers whereby milk, dung, and other animal products were exchanged for grain, access to grazing, and perhaps manufactured goods. In practice the distinctions are likely to have been blurred, since many pastoralists are likely to have had a settled base where the elderly and women with very young children lived year-round, growing a few crops. Settled farmers may have made arrangements with pastoralists

whereby the latter took charge of some of the farmers' livestock during the period when the animals needed to be taken to seasonal pastures away from the settlement. In Mesopotamia, where this system was well developed, contracts for such arrangements survive from this period: The pastoralist received in payment a proportion of the annual yield of wool and lambs from the flock. In addition to the private arrangements between individuals or families, pastoralists in Mesopotamia also entered into such contracts with temple or secular authorities. The elusive rulers of the Indus state may have employed similar means to maintain large herds and flocks that could not be supported on pastures in the vicinity of the cities.

A few settlements have been found that can be linked to pastoralists, although they are hard to locate, given their ephemeral nature. At Nesadi (Valabhi) in Saurashtra, pastoralists dwelt in circular huts with rammed earth floors, occupying the settlement during the winter months, as their successors do today. At this time of year there was abundant lush grazing in the region, which not only provided fodder for the domestic cattle of the inhabitants but also attracted wild animals such as deer, which the pastoralists hunted. In the summer, this campsite was under seasonal (monsoon) floods, the pastoralists having moved away to higher ground. Another probable pastoralists' campsite, from the Late Harappan period, was uncovered at Oriyo Timbo in Gujarat. This site was probably occupied seasonally by a community whose main economic strategy was the herding of cattle, sheep, and goats but who may also have practiced a limited amount of cultivation. No structural remains were found there, with the exception of hearths, and it is therefore probable that temporary huts were constructed on arrival each year. The main surviving traces of the settlement's occupants are sherds of Lustrous Red ware pottery, querns, and grinding stones. Analysis of the cattle and caprine bones show that the animals were killed in the hot season, March to July, indicating the time of year when this camp was occupied.

Other Domestic Animals

A number of other domestic animals were kept by the Harappans. These probably did not include domestic pigs; wild boar were common throughout the Indus Valley and adjacent lowlands and were among the abundant game hunted by the Harappans.

Dogs: Bones of the domestic dog (Canis familiaris) have been found in many Harappan sites, as have a number of dog figurines. These indicate that there were several different breeds, including a squat animal resembling a bulldog and a rangy beast like an Afghan hound. Another type had pointed ears, while a fourth had an upright tail. Collars are shown around the necks of some of the figurines, reinforcing their domestic status. One dog is shown tied to a post and may represent a guard dog.

Cats: It is possible that cats were kept by the Harappans: A number of felid species are native to the region, including *Felis lybica*, the ancestor of the domestic cat, and the rather larger *Felis viverrina*, the fishing cat. Paw prints made by the latter were found in a brick at Chanhudaro that had been laid out to dry when the cat ran across, pursued by a dog. While cats may not have been deliberately domesticated, they are often commensal with humans in farming settlements where they are attracted by the rodents that feed on stored domestic grain. Unconfirmed bones of domestic cat (*Felis catus*) have been identified at Rojdi.

Birds: The chicken (*Gallus gallus*) may have been domesticated in South Asia, where its ancestor, the wild Indian red jungle fowl, was indigenous to the Ganges Valley and to parts of the greater Indus region. Recent genetic work, however, suggests that all modern domestic chickens were descended from birds domesticated in Thailand, though some genetic variations may indicate contributions from other birds, making it still possible that Indian chickens were locally domesticated. Chicken bones have been found on many Harappan sites, including the cities of Mohenjodao and Harappa, the towns of Ropar and Kalibangan in the east, and Lothal, Rojdi, and Surkotada in the west.

A variety of other birds were exploited by the Harappans. Cranes are captured and kept as pets by the people of the Bannu Basin in modem Pakistan, and the representation of cranes on fourth-millennium pottery from this region, at Taraqai Qila and other sites, has been tentatively interpreted by Dr. Farid Khan (1991) as suggesting that the practice may also have taken place in ancient times, using the perforated stones found there as weights in a bola to capture the birds. This is an imaginative but not improbable suggestion.

Hares: Hares were common in the Indus region and may have been kept as children's pets but could also provide meat. They are known as terra-cotta figurines and are one of the small group of signs commonly occurring on copper tablets; they also occur among the miniatures at Harappa.

Mongooses: Another species that was present at a number of sites, including Mohenjodaro, Harappa, Rangpur, Surkotada, and Kuntasi, was an ichneumon, the Indian gray mongoose (*Herpestes edwardsi*). It is possible that mongooses were kept by the Harappans as a protection against snakes. Bones of a mongoose, probably imported from the Indus, were found in early second-millennium Bahrain (Dilmun).

Elephant: The fauna of the greater Indus region included the Indian elephant (*Elephas maximus*). Ivory, which probably came mainly from the elephant, was extensively used by the Harappans: At Mohenjo-daro it was more common than bone as a material for making artifacts. Elephant bones have been recovered from a number of sites throughout the Indus region, from Lothal and Surkotada in Gujarat, to Mohenjodaro and Chanhudaro in Sindh, and to Harappa and Kalibangan in the east; although elephants could have been hunted for their meat, these bones may suggest that tame elephants were employed as work animals, to haul logs, for example. Further suggestive evidence of tame elephants comes from representations on seals of elephants apparently wearing a cloth over their back, and a clay model of elephant's head with painted designs on its forehead: Elephants are similarly decorated with paint on festive days in modern South Asia.

Camel: The two-humped Bactrian camel was domesticated in southern Central Asia, originally for meat and fur, and figurines show that it was used there to draw carts and as a beast of burden by the midthird millennium. A skeleton identified as a domestic camel was found at Mohenjodaro, from a level belonging to the Posturban period. Similarly, camel bones identified at Harappa, Surkotada, Kanewal, Kalibangan, and perhaps Rojdi were all from the upper levels of these settlements, and none is likely to be earlier than 2000 BC. A single representation of a camel at Kalibangan also confirms that the Harappans were familiar with the creature, not surprisingly given the existence of the Indus colony of Shortugai in camel country. Shortugai has also yielded a rather schematic terra cotta figurine of a camel.

Equids: There is considerable controversy about the presence of the domestic horse in early South Asia, made contentious by being bound up in the Indo-Aryan debate. Bones said to come from the domestic horse have been found at a number of Harappan sites. From detailed studies of these equid bones, however, the eminent archaeozoologist Richard Meadow concluded that none definitely came from a domestic horse, and the balance of probability is that all the equid bones in Harappan and pre-Harappan contexts in India and Pakistan came from the onager (*Equus hemionus*, also known as the steppe ass). This wild equid is indigenous to northern South Asia, unlike the ancestor of the horse, *E. przewalskii*, which is native to the steppe region from the Ukraine to Mongolia. Morphologically, the two species are similar and it is often difficult to distinguish their bones. The onager is apparently too intractable to domesticated, although there are claims that young onager can be tamed. Wild onager could provide meat and skins for leather: This is probably the reason for the presence of equid bones on Indus sites.

Faunal Collections

The history of the exploitation of aquatic resources is obscured by the frustrating paucity of well-reported faunal collections from prehistoric sites in the greater Indus region. However, at the

exemplary site of Mehrgarh the remains of fish were rare despite the proximity of the Bolan River, and the reported remains from other Neolithic and Chalcolithic sites in the Indo Iranian borderlands do not suggest a tradition of exploiting riverine resources. The absence of fish in the coastal settlement of Balakot during the pre- and Early Harappan periods suggests that the pastoralists from Baluchistan who settled there had no interest in the locally available marine resources. In contrast, the presence of seashells at inland sites such as Mehrgarh, brought there through exchange networks, indicates that from early times there were coastal communities who did exploit marine resources. Similarly, fish were regularly caught by hunter-gatherer communities in the subcontinent, as is vividly shown in the rock art at Bhimbetka and other Central Indian sites. Fish bones were among the faunal remains at Bagor, and in the Hakra period site of Jalilpur on the Ravi River terra-cotta net sinkers indicate that fishing was practiced. In all probability, the pre- and Early Harappan inhabitants of Gujarat exploited marine resources: "Although faunal remains have not been reported from their settlements, the coastal location of sites such as Padri and Somnath and the island situation of Dholavira are suggestive, as is me presence of fishhooks at Padri."

Fish and Fishing

An important source of food for the Harappans was fish: Large numbers of fish bones have been recovered from the Harappan settlements whose faunal remains have been studied. Some bones came from fish 2 meters or more in length, and it is likely that fish were an important source of protein. At Batakot fish provided around half the faunal component of the diet. The faunal remains from the coastal settlement of Balakot and from Harappa far inland near the Ravi River have been examined in detail, providing a complementary picture of the exploitation of marine and freshwater resources.

A large selection of marine fish were exploited at Balakot, including requiem sharks, stingrays, wolf herring, sea bream, mullet, and drum, but the villagers concentrated on a few species, particularly

marine catfish, mackerel, and various types of grunt, the latter around 90 percent of the fish caught. The range of fish varied seasonally, with few species being available in winter but many coming in close to shore in the summer and autumn to spawn, making them easy to catch. The grunt, however, spawns during the winter and could be easily caught with stationary nets set up in the shallow waters of Sonmiani Bay where Balakot is located. A similar range of marine fish was found at Allahdino, along with freshwater catfish. The Harappans probably used similar techniques to those of modern fishers in the region, who catch some fish close to the shore and others farther out to sea, using fixed nets particularly for large fish and cast nets for smaller ones; some nets are also set on the sea bottom to catch crabs and other crustacean. Modem fishers also practice trolling: crisscrossing an area of sea towing a series of lures and hooks from the boat.

Preserved Fish

As well as being eaten fresh, fish were dried or salted so that they could be eaten later or elsewhere. At the tiny site of Prahag, west of Balakot along the Makran coast, where sherds of Harappan and local pottery are known, evidence was found of fish processing on a large scale. Skate, jack, grunt, marine catfish, drum, and small shark appear to have been caught locally, probably from boats using a hook and line. They were then cut open and the heads and tails removed, as well as part of the vertebral column of the skates and sharks; they may then have been preserved by salting or drying. Dolphins were also caught, and the people of this region also ate sheep, goats, and gazelle, perhaps reserving the dried fish for export. Bones of marine catfish and jack at Harappa show that preserved fish was transported even this far inland, more than 850 kilometers from the coast. Similarly, abundant bones of shark, marine catfish, drum, sea bream, and jack at Miri Qalat in Baluchistan, 120 kilometers of difficult terrain distant from the sea, also provide evidence of a flourishing trade in preserved marine fish: In modern Baluchistan dried fish are used not only for human food but also as

fodder for animals. Probably only a limited range of species were distributed in this way. Grunt (*Pomadasys hasta*), the predominant fish at Balakot, are often preserved by salting in modern times.

The settlement of Padri in Saurashtra has been suggested by its excavator, Vasant Shinde, to have been a salt-making village in the Harappan period. Salt making is one of the local industries there today, and the flat area on the southern side of the Harappan village was ideally suited for this purpose because it was submerged at high tide but protected from lesser tides by a high natural barrier. This allowed seawater to be captured and left to evaporate in small embanked plots, aprocess taking a little over a week. Shinde suggests that the well-made, sturdy, nonporous storage jars found at Padri were designed for transporting salt. If so, preserving fish and perhaps other meat may have been one of the main purposes for which this industry was intended.

Molluscs

Shellfish were taken in considerable quantities by coastal communities. The shells were processed to make a variety of objects, particularly bangles, and this may have been the main reason for their collection, the edible molluscs being a bonus of the shell-working industry. The internal shells (bones) of cuttlefish, found, for instance, at Othmanjo Buthi in Sindh, could have been used as an abrasive device for sanding wood or could have been ground up and made into an abrasive paste. Some settlements, such as Nageshwar on the northern coast of Saurashtra, probably existed for the specialized purpose of exploiting marine molluscs for manufacturing shell objects.

The shells were obtained in various ways. Nageshwar is situated on a freshwater lake with easy access to extensive shallow bays in the sheltered waters of the Gulf of Kutch from which abundant supplies of *Turbinella pyrum* (chank) and *Chiodreus ramosus* (spiny murex) shells could be obtained. Although these could be gathered in the shallow coastal waters, the fishers of Nageshwar seem generally to have gone into deeper water on rafts or small boats to

obtain shells that were free from the boring activities of *Cliona* sponges and other marine organisms to which those near the shore were prey. Farther north, the shellfish collectors of Balakot and other settlements on the coast of Sindh and Makran obtained some of their shells, such as the bivalve *Meretrix casta*, from intertidal pools and from the shallows at low tide. Other types of mollusc had to be dived for from boats on reefs in shallow coastal waters.

Here the fishers might encounter hazards such as moray eels, Portuguese man-of-wars and other dangerous jellyfish, and poisonous sea snakes and fishes. Fishing and diving for shells probably took place mainly before and after the monsoon, in April to June and in October to January. In addition to chank and spiny murex, these regions yielded *Lambis truncata sebae* and *Fasciolaria trapezium* shells, all used for making objects found throughout the Indus realms, as well as various species whose circulation was more restricted, such as clam shells (*Tivela damaoides*), which were worked at Balakot to make shell bangles worn by people in the local area and at other sites along the Makran coast but not farther a field. In addition, at Balakot *Terebralia palustris* molluscs, which live in mangrove swamps and brackish water, were collected in large quantities and were probably the main source of shellfish for food; they were not used for making shell objects.

Hunting and Gathering of Forest Resources

The farming communities of the Indus and neighboring regions had always continued to exploit some wild resources alongside those derived from arable agriculture and pastoralism, and it seems that this practice increased and broadened in the Mature Harappan period.

Animals

To some extent hunting was a by-product of agriculture, birds and herbivores being killed to protect crops and predators to protect livestock, but game could also be a valuable addition to the diet. Many types of game animal such as chinkara and other gazelles, onager, wild sheep (urial), wild goats (Persian wild goat, markhor,

and ibex), blackbuck, and other antelopes lived in the hills and grazed in the scrub and grasslands of the plains, while the well-watered areas along the rivers and lakeshores were home to nilgai, wild boar, water buffalo, wild cattle, elephant, chital, barasingha, and other deer. Several varieties of turtle, crocodiles, and dolphins, as well as molluscs and fish, could be taken from rivers and lakes. Wildfowl were also available around water, and particularly on Lake Manchar and in Gujarat. There were also other birds that made good eating, such as francolin, partridge, pheasant, jungle fowl, grouse, and peafowl. Even lizards were caught and eaten.

Edible Plants

Wild plants were also important: as well as providing grazing for domestic animals, some, such as *Chenopodium*, were undoubtedly exploited as human food. It may have been through familiarity with the range of local flora that some summer-growing plants were brought under cultivation, introducing the innovation of *kharif* agriculture. In this way rice, some millets and pulses, and a number of vegetables are likely to have first been incorporated into the diet and then added to the range of crops. Fruits such as jujube, almond, and pistachio were gathered. It has been suggested that wild plants were collected particularly when cultivated crops were unable to supply the full needs of the community, either because of bad harvests or because of population increase in the region. At Rojdi, about a quarter of the plant food came from wild sources; more than a dozen species of wild plants were utilized at Harappa; and the balance between wild and domestic plant foods was likely to have been regionally and locally variable.

Timber

The forests of the Himalayas, Baluchistan, and the Gujarati hills, as well as the jungles of well watered lowlands in the Indus Basin, were the source of timber used as a building material, for fuel, for many domestic purposes, and for export. Useful species included sissoo, acacia and tamarisk, which were widely available. Sissoo was used for roof beams at Mohenjodaro, while acacia was

found at Lothal and Rangpur, used for making tools and furniture as well as in construction. The main use of tamarisk was for fuel, though it could be used for making many objects and structural elements; it is attested to at Rangpur. Rosewood was available on the plains, as well as in peninsular India: It was used for one of the wooden coffins found at Harappa and was also employed for making furniture, tools, and the wheels of carts. In the east the forests also held sal trees. The trees at higher altitudes in the mountains included deodar and pine, known from Harappa and Mohenjo-daro and used in buildings and for other purposes; both are fragrant woods, as is sissoo. Elm, also growing at high altitudes, was used for construction at Harappa. Another mountain species, the birch, is not attested to, but in later times it was used for fuel and its bark was an important writing material. Teak, generally useful and particularly suitable for shipbuilding because it is water-resistant, grew on the high ground in Gujarat, and in lower parts of the region *baru* grass (*Sorghum* halepensis) yielded tough tubular stems up to 5 meters long that were suitable for making smaller boats. Ebony was available in the forests of the Western Ghats but has not been found in Harappan sites, though it may be referred to in Mesopotamian texts as an import from the Indus (*sulum meluhhi*, "black wood of Meluhha," alternatively identified as rosewood). Mangrove, also possibly similarly mentioned (*kusabku meluhhie*, "Meluhhan seawood," alternatively identified as teak), was available along the west coast and may have been used in boatbuilding and for fuel. Native fruit trees included jujube, almond, and pistachio; a wooden mortar set in a grinding platform at Harappa was of jujube wood. Bamboo was available in the Makran and its wood was found at Harappa. Date palms grew in the Makran and in Sindh: As well as their fruit, they yielded wood, leaves for making baskets, mats, and roofs, and fiber for ropes and cords.

MERCANTILE ECONOMY

One of the features of the Indus civilization that most struck early researchers was its apparent uniformity: The material found

in sites throughout the Indus realms seemed entirely uniform, with no regional or chronological variation. Closer familiarity with the Indus material and the establishment of a sequence of development at a few sites, such as Harappa, have dispelled this impression of complete invariability: Some changes through time have been established and some regional variations defined. Nevertheless, there remains a considerable degree of uniformity in the material found throughout the Indus realms, reflecting a culturally integrated polity with strongly developed internal distribution networks. To a large extent, the people of the Indus realms would have been self-sufficient in food (although the larger towns and the cities would have needed to draw foodstuffs from their hinterland to support their large populations, which included large numbers of nonfarming citizens). Foodstuffs were nevertheless transported between different regions of the Indus realm: The vast majority have left no trace, but date stones at Mohenjodaro and the bones of dried marine fish at Harappa provide tangible evidence that this occurred.

The raw materials of different regions were also transported to other parts of the Indus realms. Whereas in earlier times, local sources of flint were exploited by the inhabitants of each region, during the Harappan period the very high-quality brownish gray flint of the Rohri Hills was intensively extracted and distributed to every part of the Indus polity, either as a raw material or in the form of finished artifacts: For example, most of the stone tools at Balakot were acquired in finished form. Shells, used particularly as the main material for making bangles, were gathered in large quantities on the Makran and Gujarat coasts. Some were processed locally and distributed either as blanks or as finished objects while others were transported intact to major settlements where they were cleaned and worked. Often individual workshops concentrated on producing a particular type of shell artifact or on working a particular variety of shell. Similarly, there were lapidary workshops both near the sources of agate, carnelian, and other gemstones and in major settlements far from these sources.

Weights and Measures

Another insight into the organized nature of the internal distribution network is provided by the existence of a standardized system of weights and measures, used throughout the Indus realms, weights, made of stone such as chert, were generally cubical in shape, but fine jasper or agate weights in the form of truncated spheres also occurred, as well as a few pierced conical weights and knobbed conical weights resembling the pawn in a chess set. They are known to have been made at Harappa and Chanhudaro. Small cubical weights, ranging from one to sixty-four times the smallest unit of 0.871 grams, were present in all sizes of settlements, while major towns and cities also had heavier weights, up to 10.865 kilograms (12,800 units).

It is highly probable that the Indus weights, like those of Mesopotamia, were used by those in authority in regulating the issue and receipt of goods and in measuring the quantities of goods received in taxation or issued in official payment. Kenoyer (1998, 99) notes that groups of weights have often been found near the gateways of Indus cities, suggesting that they were used by officials who were regulating the flow of goods into the city and collecting dues on them. Whatever their precise use, the very existence of a system of weights standardized through the Indus region implies official control and the regulation of the movement of commodities.

Seals

One of the most characteristic finds from Indus settlements is the square stamp seal. Usually made of steatite (soapstone) and hardened by firing, each seal bore an inscription, usually short, and a picture, generally of a single animal, although scenes also occurred. The use of a design on the seal would have allowed their recognition by all concerned parties, such as carriers and warehouse workers, whereas the writing could be understood only by (the probably limited number of) literate individuals. The seals had a semicircular perforated boss on the back so that they could be carried on a cord or fastened to a belt or wrist strap. Seals may have had a number of uses. In the context of trade and the movement of goods, they

could be used in two ways. First, they could have acted simply as tokens establishing an individual's identity or credentials. In this context they may have been issued as badges of authority to merchants traveling on official business and to other individuals who needed to show their authority or prove their credentials. In historical times, tokens bearing an official seal were used as passes in a system controlling road traffic. If the Indus realms were not a united state but a series of smaller polities, the seals might similarly have been used as identifiers by individuals who passed between the polities on the business of trade and resource procurement. Personal seals could also have been used by individuals to establish their identity in private transactions.

Second, seals could have been used to create impressions in soft media, such as clay or wax, attached to goods. Such sealings could serve to identify packaged goods as the property of the state or of a particular individual or as deriving from a particular place. The presence of an unbroken clay sealing could also act as a guarantee that the sealed package had not been opened or tampered with before it reached the intended recipient. Doors, to houses or storerooms, could similarly be sealed, a practice attested at the Helmand city of Shahr-i Sokhta and in Mesopotamian literary sources, though not known from any Harappan site. In Mesopotamia, where documents were written on lay tablets, seals were also impressed on a variety of documents to identify the individuals or officials involved in, acting as witnesses to, or attesting to the accuracy of an agreement or transaction. If comparable documents were created by the Harappans, they were made of perishable materials of which no trace remains.

Distribution Mechanisms

The closely integrated nature of the Indus realms implies the existence of efficient communications networks, utilizing inland routes over land and by river and along the coast by sea.

Land Transport

Local transport was on foot or by bullock cart. Terra-cotta models provide a clear picture of the wooden carts with solid

wooden wheels that were widely used for land transport over short distances. These are virtually identical to those of modern farmers of the Indus region. Some consisted simply of a solid wooden platform above the axle, others had an open framework. In some cases the platform may have had permanent sidepieces but many just had holes into which wooden stakes could be slotted when required to form sides supporting a load. These carts were drawn by oxen or bullocks, of which there are also terracotta models. A different style of cart, with a short chassis, a roof, and high sides, was probably a vehicle in which people traveled. A small platform in front of the cab provided a seat for the driver.

Land transport over long distances probably generally employed pack animals, though small valuable commodities could be carried by people on foot. In modem South Asia, pastoralists play an important role in providing links between settled communities and in transmitting goods from place to place as they move in their seasonal round. Seasonal movement was an important part of the pastoral economy in Harappan times, and it seems highly probable that people taking their animals through different parts of the Indus realms would have acted as carriers, moving goods from source to consumer and participating in a complex network of connections among pastoral groups from different regions, enabling the produce of one region to be transported to others. While the camels and horses available to more recent pastoralists were not present in Indus times, cattle can transport heavy loads and even sheep can be used as pack animals. While many goods probably moved within private transactions, pastoralists may also have been entrusted with the carriage of official consignments of goods by representatives of those in authority.

Water Transport

Although land transport was important, particularly over short distances and between lowland and highland regions, water transport along the rivers and streams would have been easier for long-distance transport, particularly of heavy or bulky goods. Most of

the major settlements were linked by a network of waterways that were navigable for at least part of the year. The Indus is navigable from where it enters the plains in Punjab, south of the Salt Range. Coastal communications by sea would have linked communities within Gujarat, and those of Gujarat with those of the Makran coast. The development of watercraft was stimulated by the needs of fishers and the colonization of areas where water transport was required, such as the islands of Gujarat and the shores of Lake Manchar. During the rainy season, when a huge area surrounding Lake Manchar is submerged by floods, modern inhabitants of the region abandon their homes on its shores and take to houseboats, or they live year round on houseboats, a way of life that may have existed in Indus times. Modern communities also live on houseboats on the Indus in Sindh. Boats like these with a shallow draft can be used on the Indus except during the most turbulent period of the summer inundation; other branches of the modern Indus, such as the Western Nara, are navigable for most of the year. While the course of the Indus and its branches and tributaries have changed since Harappan times, there is no reason to suppose that it was any less navigable then than now. The Saraswati system must also have offered water transport.

A clay model from Lothal represents a boat with a mast, attachments for a sail, and a steering oar. It seems to have had a keel, a flat bottom, and high bows, with a lower stem. Such a ship could have been used both for coastal sailing and for seafaring in the Gulf where its shallow draft would have been advantageous. Although the model gives no indication of the material from which such vessels would have been built, teak, a preferred timber for shipbuilding, grows in Gujarat, where the Hasappan seagoing ships would have been constructed, as does *Thespesia populnea* (country teak), a wood used particularly for the keels of ships. It is likely that Harappan ships would have been built of these timbers, which were also among the Harappan exports to Mesopotamia where they were also destined for shipbuilding. Teak vessels had a life expectancy of many decades, possibly as much as eighty years. Although there

is no evidence of the method of construction, it is possible that they were made of planks stitched together, as are many modern South Asian boats. Vessels constructed in this way are very resilient. Other country craft include boats made of hollowed logs, and such vessels may also have been used by the Harappans for coastal or river travel and fishing, though only plank-built vessels would have been suitable for carrying any volume of cargo.

South Asian Trade and Exchange

Although the resources of the greater Indus region were rich and varied, it lacked a number of important raw materials, notably copper. Metal tools played an important part in Harappan Industry, such as stone carving and carpentry, and were also used in preference to traditional stone tools for some purposes. Some of the raw materials required by the Harappans could be obtained from neighboring areas. Finds of Harappan material in the settlements of adjacent foraging, fishing, or farming cultures reveal the extent of their trading links.

Hunter-Gatherers

Contacts between farmers and hunter-gatherer communities are attested from early times when hunter-gatherers at settlements such as Bagor in Rajasthan and Loteshwar in Gujarat acquired domestic sheep and goats by trading or raiding, perhaps as early as the sixth millennium BC. The spread first of pastoral groups and later of farmers into the Indus plains and beyond into Gujarat and the Indo-Gangetic divide brought farmers and hunter-gatherers into closer contact, and in many areas this led to acculturation. For example, hunter-gatherer communities in Saurashtra in the late fourth millennium began to make pottery that was distinct from the Kechi Beg wares of the contemporary inhabitants of Baluchistan, adopting the technology but inventing their own styles; this phenomenon is paralleled in other parts of the world, for example, in Europe, when hunter-gatherers and farmers came into close contact. Later this region had several different styles of Harappan pottery (Sindhi and Sorath), but its inhabitants were no longer pursuing a hunter-

gatherer way of life. However, in some other regions, such as the adjacent north Gujarat plain, farming settlements did not become established and here hunter-gatherers continued their established way of life, often moving with the seasons to exploit the resources of different econoiches.

In most parts of the world, me development of farming ultimately spelled the end of hunting and gathering as a way of life, due to competition for land and the destruction of the parts of the environment on which hunter-gatherers depended. This was not the case in the Indian subcontinent, where hunter-gatherer groups have continued to exist up to the present day. Instead of being submerged they adapted their self-sufficient lifestyle, moving gradually into mutually beneficial interdependence with settled communities. Since hunter-gatherers had a mobile way of life, exploiting regions that could not support agriculture, they could provide the desirable products of jungle and desert that were otherwise difficult or impossible for settled groups to obtain, such as honey, wax, ivory, resin, wild silk, and plant fibers for making cord. Agate and other gemstones for making beads may also have been obtained by hunter-gatherers. They could also act as carriers, transmitting the commodities of one settled region to the inhabitants of another; in exchange they could receive both foodstuffs, such as grain, and goods whose manufacture was beyond their own technological capabilities, such as copper knives. At the time of the Indus civilization, this relationship was in its infancy but was nevertheless becoming an established pattern.

The extent to which hunter-gatherers were integrated into Harappan society probably varied regionally. In some areas, such as Saurashtra, hunter-gatherers may have been occupational specialists comparable with transhumant pastoralists or the people who gathered and worked marine shells, and were probably regarded as members of Harappan society. Such foragers are difficult to identify or distinguish archaeologically from other Harappans. In contrast, in other areas, such as the north Gujarat plain, hunter-gatherers were culturally distinct and were among the many groups with whom the Harappans traded.

Neighbours to the South

Rajasthan and the Deccan: The Harappans enjoyed good trading relations with a number of other cultures of other cultures on their borders. Of particular importance was their trade with the people of the Aravallis, the Jodhpura-Ganeshwar culture, who gained much of their livelihood from fishing, hunting, and gathering. The Khetri region of the Aravalli Hills is one of the richest sources of copper in the subcontinent. Often the copper ore occurs in association with arsenic: when smelted, arsenical copper ore produces a useful natural alloy that is harder than pure copper. These hills also yielded steatite, used for the majority of Indus seals. Other minerals occurring there include turquoise, sodalite (a mineral resembling lapis lazuli), zinc, gold, silver, and lead, though there is no evidence that these were extracted there during the Indus period. Tin deposits are known in the Khetri belt, particularly in the Tusham Hills in Haryana, at the northeast end of the Khetri belt, not far south of the eastern region of the Harappan civilization. However, although a number of Harappan metal artifacts were made of bronze (tin-copper alloy), the majority were of copper or copper-arsenic alloy. Tin was not used in the post-Harappan period when this eastern region was a focus of settlement, and in the first millennium BC tin was imported. All these data suggest that this local source of tin was not known in ancient times.

As early as the Early Indus period, a trading relationship had developed between the Indus farmers and the people of the Aravallis, who had been exploiting the region's copper since the late fourth millennium. The Jodhpura-Ganeshwar people seem to have mined and smelted the copper ore themselves and to have exchanged the smelted copper with Harappans who traveled to the region to trade. In return, the people of the Aravallis obtained manufactured goods and other Indus produce, probably including objects made from the copper they had previously supplied, since Harappan arrowheads were found at Kulhadeka-Johad near Ganeshwar in the Khetri mine area and at Jodhpura. The trade network probably operated along a riverine route, particularly through Kalibangan, located some 250

kilometers to the north of Ganeshwar along the Kantali River, which was tributary to the Drishadvati in antiquity. In the Early Indus period when copper artifacts were relatively rare, Kalibangan had an unusually large number (fifty), including characteristic Jodhpura-Ganeshwar arrowheads. Kalibangan was therefore probably engaged in the importation of copper and copper artifacts from the Aravallis from the Early Indus period onward. In the Mature Harappan period, the route through Kalibangan (which has yielded twelve hundred Harappan copper objects) was probably used to bring copper to Harappa. Rakhigarhi, Mitathal, and Banawali to the northwest of Ganeshwar may also have been involved in the importing of copper in the Mature Harappan period. Another route may have led west from the Aravallis to Kot Diji and thence to Mohenjo-daro.

Southern India: Whether the Harappans traveled farther south is unknown. South India has one of the world's largest gold reefs, as well as precious and semiprecious stones such as amethyst, beryl, and amazonite. Gold from Karnataka in south India has a natural admixture of silver, and so the electrum objects known from the Indus civilization may indicate that gold from there was being imported and worked by the Harappans. South Indian Neolithic gold and Deccan amethyst may have been exploited and traded, ultimately reaching the Indus through exchange networks; there is no evidence of direct contacts between this region and the Indus. However, communications of some sort, operating through the regions between the northwest and southern India, are suggested by a number of data: the appearance of sheep and goats in South India during the later third millennium; a surface find of a Mesopotamian cylinder seal at Maski, near me Hutti gold reef (known to have been exploited in early times, since gold is present at Neolithic sites such as Piklihal, Maski, and Kodekal); the discovery of a Harappan bronze chisel at Piklihal; and the recent discovery of a stone axe inscribed with four signs in the Indus script from Mayiladuthurai in Tamilnadu. Hunter-gatherers were probably involved in the chain of communications. It is possible, though unlikely, that the Harappans themselves traveled to Karnataka to exploit its gold and minerals.

Neighbours to the North and West

The mountainous regions to the north and west of the Indus realms, the Indo-Iranian borderlands and the Himalayas, were rich in resources useful to the Harappans: notably timber, metal ores, and other minerals. The Indo-Iranian borderlands had been culturally integrated with the Indus Basin during the Early Harappan and preceding periods, but major changes had occurred with the cultural unification of the Indus civilization. Many earlier settlements were abandoned. The Kot Diji areas of the northern borderlands developed their own separate Late Kot Diji culture, though they continued to trade with the Harappans. Harappan artifacts such as beads, terracotta cakes, and toy carts might have been acquired haphazardly in individual transactions, when, for example, pastoralists from this region migrated to the plains during the winter, but the presence of an Indus weight in the Late Kot Diji sèttlement of Gumla shows that this trade was organized. Harappan pottery was present in some settlements such as Periano Ghundai, Rana Ghundai, and Sur Jangal: Often the Harappan material was concentrated in a small part of the settlement. Very little Mature Harappan material was found in the town of Rehman Dheri, the major settlement of the region, but it was common in the small site of Hisham Dheri immediately to its north, perhaps suggesting the latter might have been a caravanserai or trading settlement where Harappan traders came to conduct local business. Among the important resources of this region was salt, from the Salt Range where a Late Kot Diji settlement is known at Musakhel. The Salt Range also had copper ore and gypsum. Farther north in Swat, where the important Late Kot Diji settlement of Sarai Khola was located, there was alabaster; this could also have been obtained farther south, from the western Bugti Hills.

To the east of the Late Kot Diji culture area, in Kashmir, there were settlements of the Northern Neolithic culture, such as Gufkral and Burzahom. In the early third millennium, these sites had been in contact with settlements in the northern borderlands and the Indus plains, and these contacts continued. The presence of traded Indus material, such as the cache of nine hundred agate and carnelian

beads at Burzahom, reflects the importance to the Harappans of Himalayan timber, exploited over a broad front. The Harappans may also have obtained minerals from this area, including gold, silver, lead, copper, steatite, agate, and amazonite, and possibly jade from Khotan in China, a material obtained and used by the Kashmir people themselves.

Kulli: In contrast to the northern borderlands, southern Baluchistan, home to what is known as the Kulli culture, remained closely linked with the Indus civilization. Opinions are divided whether the Kulli material and settlements represent a separate culture or merely a highland regional subculture of the Indus civilization. Indus seals and weights have been found in several Kulli settlements, confirming the close economic and cultural between the Indus civilization the Kulli region. The people of the Kulli culture, presumably the descendants of Amri-Nal farmers and pastoralists of the region, seem to have combined pastoralism with sophisticated irrigation agriculture. They occupied large walled settlements generally situated on bluffs, which often had an elevated area with monumental platforms that may have served some religious purpose. Distinctive Kulli material included many figurines of bulls and women, as well as certain forms and decorative motifs in the pottery, such as straight-sided canisters and zoomorphic designs. However, many of their pottery vessels resembled those of the Harappans, and other characteristic Harappan artifacts, such as model carts, were known in Kulli sites. Conversely, a few Kulli objects were found in Harappan settlements in adjacent regions, such as Nausharo and Lohumjo-daro; these included two steatite boxes at Mohenjo-daro that resemble ones from Mehi.

Since at least the seventh millennium, the Kachi plain had benefited from its location on a major route through the Bolan pass into the interior of Baluchistan and from there through the Quetta and Kandahar Valleys to Seistan or beyond, through the Khojak pass, to Afghanistan and Central Asia. The political changes that accompanied the emergence of the Harappan civilization, however, seem to have closed this route beyond the Quetta Valley.

Northwestern Baluchistan, with the important town of Mundigak, became incorporated into the Helmand culture and no longer traded with the Indus region. Small quantities of Harappan material in the Quetta Valley show that a limited amount of interaction occurred with the people of what had earlier been the Damb Sadaat region. Traffic through the Bolan pass would now have come almost exclusively from southern Baluchistan, passing through the Quetta Valley: The use of this route is indicated by the presence of Kulli material in Nausharo in the Kachi plain. Another route from the Kulli area led through the Mula Valley to the plains at Pathani Damb, site of a Mature Harappan town that may have been of considerable size.

Procurement Centers

One of the hallmarks of the Indus civilization was the establishment of outposts beyond the main area of Harappan settlement, designed to control the produce of key regions. These included Manda, Ropar, and Kotia Nihang Khan in the north, located in the Himalayan foothills on the Chenab and Sutlej Rivers, near where each became navigable. These settlements were well placed to control the exploitation and distribution of timber such as pine, ebony, sissoo, and sal from the Himalayan foothills and deodar from higher in the mountains. These were carried downriver to other Harappan regions and also exported overseas. Gold dust may also have been available on the upper Sutlej. Another Harappan settlement in the north was located near Mianwali bordering the Late Kot Diji territory south of the Salt Range and may have been concerned with salt procurement. At the opposite end of the greater Indus region was the outpost of Mehgam on the southern Gujarat mainland, a site linked to the exploitation of gemstones. The most distant (and surprising) outpost was at Shortugai in Afghanistan, discussed later in this chapter.

The Indus town of Lothal in Saurashtra lay on the border between the agricultural lands of the Indus civilization and the sparsely inhabited north Gujarat plain, home to hunter-gatherer

groups, and was not far from the sea. A substantial part of this small town was given over to the manufacture of various Indus products such as beads and objects of copper, shell, and ivory. The volume of these goods produced was quite out of proportion to the needs of the town's modest resident population and the inhabitants of its hinterland. The greater part of its products, therefore, must have been made for use elsewhere. Some, it seems likely, were intended for trade with the hunter-gatherer inhabitants of north Gujarat and the desert regions to the south of the Indus realm. Others may have been made for export overseas.

Overland Trade Across the Iranian Plateau

From the earliest period of settlement at Mehrgarh in the seventh millennium, far-reaching trade networks had given the village's inhabitants access to the products of other regions, such as seashells from the Makran coast, turquoise from Kyzyl Kum in Central Asia, and lapis lazuli probably from Badakshan in Afghanistan. By the fifth millennium, lapis and turquoise were also reaching Susiana and Mesopotamia at the western end of the Iranian plateau, showing that trading networks operated right across these regions. These became more developed in the fourth millennium, with a number of trading towns growing up in the Iranian plateau, particularly at nodes in the trade routes, some procuring raw materials, some working local or imported materials, and most reaping the benefits of transit trade. Two major routes traversed the Iranian plateau between east and west: One (later a part of the famous Silk Road) ran north of the desert interior and crossed the Zagros Mountains through the Diyala Valley to reach Assyria and Babylenia; the other ran to the south of the desert, passing through Anshan to Elam and from there into southern Mesopotamia. Key materials involved in this trade included chlorite from Kerman, copper from a number of sources including the arsenic-rich deposits at Anarak in western Iran, tin from Afghanistan and the south Caspian, silver from Iran, steatite from southern Iran, turquoise from Central Asia, and gold from western Iran. A major source of minerals, including copper,

alabaster, steatite, diorite, and aragonite, lay in the Chagai Hills of western Baluchistan, equally accessible to the cultures of the Indo-Iranian borderlands and those of Seistan. Lapis lazuli from Badakshan or perhaps Chagai found its way to centers throughout the trade network, small amounts reaching Baluchistan, Elam, and the Gulf, while considerable quantities were imported into southern Mesopotamia, where it was used to decorate many valuable objects.

Early Trade Networks

Elam, a state comprising Susiana and Anshan in southwest Iran, played a major role in this trade in the early third millennium, establishing trading stations in a number of Iranian towns, including Shahr-i Sokhta in Seistan. By around 2800 BC, Elam no longer played a dominant role in eastern Iran, and from around 2300 it was incorporated into the empires of southern Mesopotamia, although the trading towns and trade network continued to flourish. The products of these towns enjoyed a wide circulation: For example, chlorite bowls (*serie ancienne*) manufactured at Tepe Yahya, mainly during the mid-third millennium, are known from towns and cities in Mesopotamia and Elam, on the Iranian plateau, and in the Gulf region; one fragment was recovered from the lowest excavated levels at Mohenjodaro, and others have been found at Nausharo, Dholavira, and near Sutkagendor in the Makran. Towns in the Indo-Iranian borderlands and Early Indus settlements in the river plains were active participants in this trade network. Trade routes through the major valleys of the borderlands linked the Indus Basin to Seistan and Afghanistan and beyond them to the Iranian plateau and Central Asia.

In the later third millennium, however, a major shift in trading patterns occurred. Mesopotamia, a major consumer of raw materials from the Iranian plateau and beyond, shifted most of its interest to new sources and suppliers in the Gulf, and communications between the Indus region and Seistan ceased. This had the major effect of denying the Harappans access to the important and varied mineral resources of the Chagai Hills. Trade within the Iranian plateau

continued, reaching as far west as Susa, but it no longer provided the international highway between Mesopotamia and the Indian subcontinent. Little Harappan material is known from Iranian sites, and the few objects found could have been acquired by trade with third parties such as Magan and Elam. The known finds include etched camelian beads at Tepe Hissar, Shah Tepe, Jalalabad, Kalleh Nisar, and Tepe Yahya; a sherd bearing a Harappan seal impression was also found at Tepe Yahya. Harappan etched camelian and long barrel carnelian beads were found at Susa, as well as a cylinder seal with a Harappan bull-and-manger design and some Indus script signs, and a round seal with a bull and six Harappan signs.

Gulf Trade

The cultures who bordered the (Arabian/Persian) Gulf had a long history of intercommunity contacts, mainly be sea, going back to the fifth millennium when pottery in the style of Mesopotamian Ubaid wares was distributed as far south as Oman. Coastal fishing communities were probably regularly in contact with those in adjacent areas and across the mouth of the Gulf, and those of the Arabian Sea coast of Oman may also have been in contact with others along Arabia's southern coasts. The mid-third millennium saw a radical change in the patterns of trade in the great area from West Asia to the Indus. Although trade with neighbours and between the cultures of the Iranian plateau continued, Mesopotamian and Harappan participation in the trading networks right across the Iranian plateau, which depended on the use of pack animals, virtually ceased, and was replaced by trade using water transport. Though not without its risks, such as storms and perhaps pirates, this was generally an easier and more efficient means of transporting goods, particularly bulky or heavy materials. Direct seaborne communications through the Gulf were now established between the Indus civilization and Mesopotamia, the main Near Eastern consumer of imported raw materials. This link enabled the Harappans to conduct direct commercial relations with Mesopotamia, giving them direct control over the management of their trade rather than depending on

intermediaries (as the land traffic had) and thereby improving both their returns on their exports and their ability to control the supply of imports. Sea trade also gave the Harappans access to the resources and markets of the cultures in the Gulf. The establishment of new Harappan settlements along the Makran coast reflected the development of this maritime trade.

Maritime Conditions

The coastal Harappans came to play a major role in seafaring in the Gulf and the Arabian Sea. From Sutkagendor westward, the South Asian coast benefited, from the sheltered sailing conditions of the Gulf. East and south of this area however ships were exposed to the perilous currents and storms of the Arabian Sea and to the strongly seasond pattern of the winds. During the winter months, between October/November and March/April, the gentle northeast monsoon winds blow from India toward the Arabian Peninsula and ultimately East Africa. If the Harappans had the knowledge and skill to use these monsoon winds, they may have sailed directly between Gujarat and the Oman coast in the winter; the settlement of Ra's al-Hadd, where Harappan material, including a seal and an ivory comb, has been found, is today the natural landfall for ships using the monsoon winds. Marine conditions bring an abundance of fish into Arabian coastal waters during the late summer and winter, making this the main fishing season. This was therefore the time of year when contacts across the Gulf of Oman would have been at their peak, and this would have been the time when fishers and traders crossed between the Indus region and the lands of Arabia and the Gulf, especially the Oman peninsula. In contrast, in summer, between May and September, the violent and stormy southwest monsoon winds make seafaring dangerous: there was therefore no easy route for seafarers from the Gulf to reach Gujarat at this time of year. Seafaring during the summer would probably have been confined to the calmer waters of the Gulf and to creeks and backwaters in the Indus delta and Gujarat.

Magan and the Harappans

Confirmation of the seasonal pattern of seafaring, at least in Oman, has come from the sites of the eastern Omani coast, such as Ra's al-Junayz (Ra's al-Jinz) and Ra's al-Hadd, which were occupied only during the winter months, September to March, when they were used as a base for fishing and shellworking. The seasonal inhabitants of these settlements brought with them copper tools, pottery, and plant foods from the interior. Such coastal settlements in Oman and United Arab Emirates (UAE) have yielded stone net sinkers, fishhooks of shell or copper, and shell lures.

From the Makran coast, it is a short, easy sea crossing, around 30-40 hours under sail, to Oman on the western side of the Gulf, known as Magan to the Mesopotamians, and seaborne relations between these areas may have been established by the early third millennium BC; fishing sites on me Oman coast are known by the fifth millennium. Magan and the Makran probably belonged during the earlier third millennium (Hili period in Magan) to a cultural interaction sphere in which ideas and small quantities of each region's local materials were exchanged and in which links were created and maintained by fishers exploiting the marine resources of the southern end of the Gulf during the winter months. Later trade between them is demonstrated by the presence of a few imported objects in Kulli sites and Kulli material in burial cairns on Umman-Nar in Magan.

The Eastern Gulf

By the twenty-fourth century BC and probably earlier, the Harappans were also sailing right through the Gulf to Mesopotamia. The most direct and easiest sea route north followed the eastern shore of the Gulf. This is an inhospitable land. The mountains of southern Irana run parallel with and chose to the coast, leaving only a narrow strip of coastal land, accessible from the interior of the Iranian plateau only through a few passes, and offering few resources to support human habitation. Settlements, such as Siraf, were

established in some periods at points where a good anchorage existed, though such sheltered spots are few in number. One such place was Bushehr where a pass cut through the mountains by the Shapur River allowed a route to be established linking Anshan to the coast via Shiraz, but this was probably little used in the third millennium. Elam, the major state in the southwest of the Iranian plateau, had access to the sea at the head of the Gulf via the navigable River Karun but developed its main trade networks overland. Around 2300 BC, Elam was conquered by Sargon of Akkad and remained largely in the orbit of the southern Mesopotamian states until 2004 BC, when the Elamites sacked Ur. A number of Harappan seals, beads, and ivory inlays and a Harappan weight were found at Susa, the Elamite capital, and gaming boards of similar design are known from Susa and Lothal.

East of Anshan in the interior of southern Iran were various small polities, notably Shahdad and Tepe Yahya in Kennan, Jiroft in the Halfl Rud Basin, Bampur and other towns in Iranian Baluchistan, and the Helmand culture in Seistan. These lay on routes running mainly east-west through the Iranian plateau, but a route to the seacoast around modem Minab and Bandar Abbas, opposite the northern tip of Oman, connected them with the sea. Trade between these towns and Magan took place during the earlier third millennium, but the people from the Iranian plateau do not seem to have sailed farther a field. During the Mature Harappan period, when the Harappans dominated the Makran coastal region, the volume of this Iran-Magan trade became negligible.

The Western Gulf

The westernshore of the Gulf is mainly desert but settlements thrived in oases such as Hofuf and in coastal locations suitable for fishing. Islands off the western shore also offered opportunities for settlement. During the early third millennium, there was a flourishing culture on Tarut Island, and by the middle of the millennium Bahrain, which had earlier seen settlement followed by abandonment, was reoccupied and rapidly built up a flourishing economy based

on agriculture, animal husbandry, hunting, and particularly fishing. A town was established on the coast at Qala'at al-Bahrain, where there was a good natural harbour. The island's main agricultural product was dates, which came to be famed in the Near East for their quality. The surrounding waters yielded not only fish but also oysters from which "fish-eyes" (pearls) and mother-of-pearl could be obtained. The island is blessed with springs of freshwater that also bubble up offshore, and it has fine natural harbours, including one at Qala'at al-Bahrain. It was therefore a natural port of call for seafarers sailing through the Gulf who would put in to replenish their stocks of water. This led to the island's eventually developing a major role as a trading entrepot where goods from Mesopotamia, the Indus, and other places could be exchanged or obtained. Trading relations also existed between Magan and Dilmun (the Mesopotamian name for the eastern Arabian littoral and Bahrain). For example, Umm-an-Nar pottery has been found in Bahrain.

Persian Gulf Seals

During the later third millennium, the people of Dilmun began to make round (Persian Gulf) seals, with simple motifs representing mainly animals or a human foot and with a high domed boss with a central groove. These continued in use into the early second millennium. A number of similar round seals bearing Harappan motifs, particularly of short-horned bull, and occasionally Harappan script have also been found, particularly in Bahrain and at Ur, but also from Failaka, Babylon, Girsu, and Susa and from Mohenjodaro and Chanhudaro in the Indus realms. Some of these seals had recognizably Harappan sign sequences, but in other cases the inscriptions included some signs or sign combinations unknown in the Indus region, suggesting that they rendered non-Harappan names or words. These may perhaps have been the?

Mesopotamian Traders in the Gulf

At the head of the Gulf lay Mesopotamia. Sumer, its southern region, saw the development in the early third millennium of city-

states along the branches of the Euphrates. At that time the waters of the Gulf extended much farther north than today, and the city of Ur lay near the sea. The rivers of the region were navigable, providing a link from the sea to the cities of Akkad, the region north of Sumer. The independent city-states of Sumer and Akkad were united into a single state by Sargon of Akkad between 2334 and 2316 BC. This empire broke up around 2200, but the region was reunified under the Ur III dynasty (2112-2004 BC). Sumer had developed writing during the late fourth millennium and by 2500 BC was creating copious records of economic transactions, legal documents, political statements, letters, and literature, so a considerable amount of information survives on Mesopotamian involvement in Gulf trade.

This seems to have ebbed and flowed. During the fifth millennium (Ubaid period), characteristic Ubaid pottery is known right through the Gulf, from Bahrain and Saudi Arabia to Qatar and UAE. This distribution may reflect active trade with these regions by the Sumerians, but it is more likely that contacts between people from different parts of the Gulf, probably in the course of fishing expeditions, led to the exchange and spread of this desirable pottery; faunal remains in the settlements of the period in the eastern province of Arabia were composed largely of fish. In the fourth millennium (Uruk period), the Sumerians turned their attentions northward, trading with northern Mesopotamia and Anatolia. Fishing communities in the Gulf, however, probably continued to interact with their neighbours.

Magan: In the early third millennium, finds of pottery show that the Sumerians established trading relations with settlements on the UAE coast of Magan, such as Umm-an-Nar, whose inhabitants obtained copper and diorite through their connections with the interior. The Sumerians may also have penetrated the interior in this period. They continued to trade with Magan throughout the third millennium, receiving copper, timber, red ochre, turtles, diorite, and olivine-gabbro in return for wool, textiles and garments, oil, hides, large quantities of barley, and bitumen. By around 2500 BC,

Umm-an-Nar, situated on an island just off the western coast of Magan, was a major trading entrepot. Crawford (1998, 126) suggests that the under representation of women and children among the burials at Umm-an-Nar may reflect the role of this settlement as a specialist center for traders and sailors without families. A building with seven narrow rooms in this settlement may have been a warehouse for storing goods for trade and commodities received in trade. Mesopotamian material was found only in coastal settlements, in contrast to Harappan material, known throughout Magan, suggesting that Mesopotamian traders were confined to the coast.

Dilmun: By the late fourth millennium, the Mesopotamians were trading with a land they called Dilmun. This name probably referred to different areas of the Gulf at different times. In the early third millennium, it was probably applied to the island of Tarut and to the Eastern Province of the adjacent Arabian mainland. In the later third millennium it seems to have referred also to the Island of Bahrain, which by the early second millennium had become the main center. At this time the people of Dilmun also established a major outpost on the island of Failaka off the southern coast of Mesopotamia.

The Indus and Mesopotamia

Although Sumerian and Akkadtian traders were active in the Gulf, there is no evidence that they ever reached farther south than the western coast of Magan. Harappan material, however, began to appear in Mesopotamia in the early days of the Indus civilization: Carnelian beads, for example, are known from some of the graves in the Royal Cemetery at Ur, dated between 2600 and 2450 BC. Initially such exotica may have reached the Sumerians indirectly either by trade through the Iranian plateau or via their trade with the people of Magan, with whom the Harappans were now in regular contact. By the late twenty-fourth century, however, the Harappans were sailing through me Gulf right up to ports in southern Mesopotamia, for it was at this time that Sargon of Akkad boasted that ships from Dilmun, Magan, and Meluhha docked at the quays of his capital, Agade, which lay far up the Euphrates river.

Meluhha, it is now generally agreed, was the name by which the Indus civilization was known to the Mesopotamians: Meluhha was the most distant of the trio of foreign lands, and the imports from Meluhha mentioned in Sumerian and Akkadian texts, such as timbers, carnelian, and ivory, match the resources of the Harappan realms. The Meluhhans were said to have had large boats, and indeed substantial, seaworthy craft would have been a prerequisite for trade over the distances involved. By the time of Sargon, therefore, if not before, the Indus people were plying the Gulf sea lanes and anchoring in Mesopotamian ports.

Harappans in Sumer and Akkad (Babylonia)

Harappan trade with Babylonia seems to have been established on a significant scale by Akkadian times. One Mesopotamian cylinder seal of this period identified its owner as a "Su-i-li-su, Meluhha interpreter." Another text, probably of this period, recorded that a Meluhhan called Lu-Sunzida paid a certain Urur, son of Amar-Luku, 10 shekels of silver as compensation for a broken tooth. It is probable that Harappan merchants were resident in Mesopotamia by this time, but one should not underestimate the difficulty of archaeologically identifying their presence: In a comparable situation in nineteenth-century BC Kanesh in Anatolia, the presence of a substantial Assyrian merchant quarter in the town was known only from the cuneiform tablets found in the merchants' houses detailing their trading and other activities, while in other respects (architecture and artifacts) their remains were indistinguishable from those of their Anatolian neighbours. Small objects that have been occasionally found, such as dice, frequently in a worn or broken condition, might have been the personal possessions of Indus merchants, as would be the Harappan seals that have been found. The Akkadian levels in the city of Eshnunna yielded Harappan material, including a cylinder seal with a design of Harappan animals (an elephant, a rhino, and a gharial), carnelian beads, and Harappan pottery. Possehl? (1997) draws attention to a toilet of this period at Eshnunna, associated with Harappan-style drainage, suggestive of Harappan influence and probably of a Harappan presence in the city.

Mesopotamia's Imports from the Indus

Some indication of the range of materials that the Sumerians and Akkadians imported from Meluhha can be gleaned from Mesopotamian texts. These included various types of timber, stone, and metal, as well as ivory and animals. Some of these were clearly of Indus origin; others were not products of the Indus region itself but were materials that the Harappans imported and traded on to Mesopotamia. In addition, texts refer to some goods that the Mesopotamians imported from Dilmun and that were clearly not produced there; many of these were originally from the Indus region.

Carnelian: Carnelian (red stone) was frequently mentioned in Mesopotamian texts, often as an import from Dilmun (which had no native carnelian), though in Gudea's inscriptions it was said to come from Meluhha. Although it is also found in parts of Iran, carnelian must have come mainly from me Harappans, who mined and worked it in considerable quantities. Their most distinctive carnelian products included exceptionally long beads and beads decorated with various so-called etched (actually bleached) designs, including eye patterns; identical carnelian beads have been found at Mesopotamian sites such as Kish, Ur, Nippur, Eshnunna, and even Assur in the north. Sometimes the Sumerians engraved these beads with cuneiform inscriptions, such as two that the Akkadian King Shulgi dedicated to the goddess Ningal as booty from his war against Susa. The Sumerians also imported unworked pieces of carnelian that were used by their own artisans. For example, there was a carnelian-working industry at Girsu; its products were small and rough compared with those imported from the Indus.

Lapis Lazuli: One of the most prized materials imported into Mesopotamia was lapis lazuli, referred to as a suitable material for adorning temples and known in Mesopotamia by the Uruk period. It was used for decorating precious objects, including the lyres and gaming boards placed as grave offerings in the Royal Cemetery at Ur, as well as being widely employed for small pieces of jewelry, such as beads and the heads of pins.

Plants and Plant Products: Linguistic evidence suggests that sesame oil was among the Indus exports to Mesopotamia. It was known in Sumerian as *ilu/ili* and in Akkadian as *ellu/ulu*, terms that are strikingly similar to an early Dravidian name for sesame, *el* or *ellu*. The plant from which the oil came, however, was known by an unrelated name and was under cultivation in Mesopotamia by around 2250 BC; it may have been introduced from the Indus or from Africa, to which it was also indigenous, via the Levant. Timbers of various sorts were valued imports to southern Mesopotamia, which lacked substantial trees for construction. "Highland *mesu* wood," from which the Sumerians made boats, chariots, and furniture, was probably sissoo (*Dalbergia* sissoo), which grew in the Punjab and in other parts of the Indus Basin, as well as in Baluchistan. Another wood used for construction and furniture was called *kusabku*—sea wood. This might have been mangrove but this identification would be problematic, since mangrove, which grows in the saline waters of the Indus delta and other Indian river deltas and on the Pakistani Makran coast, is not suitable for fine use, such as the throne inlaid with lapis lazuli mentioned in one Sumerian text. However, teak, native to the hills of Gujurat, is much used for boatbuilding because it is water-resistant, and it may therefore be a good alternative identification of sea wood. Teak is a very fine timber that would have been highly suitable for making decorative furniture.

Metals. Both Magan and Meluhha are referred to in the Mesopotamian texts as sources of copper. The Sumerians obtained some copper directly from Oman throughout the third millennium, but during the latter part Meluhha and Dilmun also acted as intermediaries and Sumer had no direct contact with Oman after about 2000 BC. It is curious that the Harappans, who were conducting expedition to Magan to obtain copper, presumably to meet a shortfall in the supply of more local (Aravalli and perhaps Baluchi) copper for their own needs, should also have been trading it on to the Sumerians who were themselves obtaining Magan copper. It is possible that the Harappans, who probably traded directly with the copper miners inland, may have obtained copper

at a rate sufficiently favourable to allow them to make a profit by selling it to the Sumerians, who had only indirect access to Magan copper via coastal settlements.

Animals and Animal Products: Ivory from Indian elephants was used in great quantities by the Indus people. Curiously, although the Mesopotamians used ivory their surviving texts record Meluhha as the source only of ivory birds. A number of Indian animals were brought to Mesopotamia as gifts or exotic goods. These may have included water buffaloes, vividly depicted on a few Akkadian cylinder seals and mentioned in a few texts. In one, they were among the exotic animals invoked to give a flavour of the cosmopolitan nature of the Akkadian capital, Agade: the goddess Inanna ensured that monkeys, mighty elephants, water buffalo, exotic animals, as well as thoroughbred dogs, lions, mountain ibexes, and *alum* sheep with long wool would jostle each other in the public squares (Electronic Corpus of Sumerian Literature, "The Cursing of Agade," lines 21-24).

Transporting animals of the size and ferocity of water buffaloes to Mesopotamia would reinforce the suggestion that the Harappans must have possessed large ships. An Ur III text describes a red dog originally from Meluhha, probably a dhole (*Cuon alpinus*), which was given to King Ibbi-Sin as tribute from Marhasi (inland southwestern Iran). Figurines of animals were also among the goods brought to Mesopotamia by the Harappans. These included ivory birds and carnelian monkeys, according to the texts, and model monkeys in several materials, including gold, have been found.

Nature of Sumerian-Harappan Trade Relations

History and ethnography show many patterns of trade, exchange, and the acquisition of goods. Some involve gift giving in the context of activities involving kin or social partners; these may not require an equivalent return. In some other cases, goods and materials are obtained by force or the threat of force, and the donour may gain little or nothing in return. Goods may be exchanged for nonmaterial rewards, such as an increase in status or protection against foes. In a high proportion of cases, however, transactions

are on a reciprocal basis, in which each party feels that they profit by the transaction, though the goods exchanged may seem to the outsider quite unequal in their value: glass beads for gold, for example.

The Sumerian and Harappan civilizations were comparable in their organizational and economic complexity. Furthermore, it seems that it was the Harappans who took the initiative in the trade between their countries, rather than the Sumerians, despite the fact that Sumer and Akkad had a great need to engage in trade to obtain the goods necessary for daily life (such as metals) and for other, prestige purposes, such as the embellishment of temples and the enhancement of royal status. The Harappans' export of timber to Babylonia is of great significance in this context. While small quantities of precious commodities like lapis lazuli or obsidian were easily moved over lung distances, the transport of relatively low-value, high-bulk goods, of which timber is an excellent example, is likely to be ur dertaken only in the context of a well-developed trading network, between roughly equal partners, and for substantial profits. One would expect the society to whom the trade was of the greater importance to be the one that invested the labour in transporting such bulky goods. In later times when the Mesopotamians obtained timber from the Levant and elsewhere, they undertook expeditions to fell and transport the timber themselves. The epic tale of "Gilgamesh and Huwawa" shows that this was the normal procurement method in early times also. Yet during the later third millennium, the Sumerians were content to rely on supplies brought to them by the Harappans. This implies that the Harappans had strong motives for trading and as traders were at least as organized and accomplished as the Mesopotamians, if not more so.

The trade in lapis lazuli seems to support this interpretation. The Harappans expended considerable efforts to acquire this stone, even establishing a special procurement center, yet this was almost entirely for trade with Mesopotamia, given that they themselves made little use of it. These considerations, coupled with the attested presence of resident Harappans in Sumer, make it certain that the

Harappans were trading with southern Mesopotamia for their own profit and that through this trade they acquired commodities important to them, despite the paucity of evidence for these imports. This contradicts the frequently expressed belief that the Harappans gained far less from the trade than the Sumerians. The Harappans were therefore clearly an impressive mercantile society engaged in substantial seaborne trade.

Changing Trade Patterns

The last centuries of the third millennium had seen the emergence in northern Afghanistan of the Bactria-Margiana Archaeological Complex (BMAC). Over subsequent centuries, it expanded west and south. It took over Shortugai and its region and ended the Indus lapis trade. It also expanded into Seistan, bringing it into the vicinity of the Indus realms. Distinctive BMAC material, such as stamp seals with geometric, floral, and avian designs, and local products reflecting BMAC designs began to appear in the Indus cities now in decline, and beyond them in the villages and small towns of the Deccan where, for example, sealings with BMAC-style motifs were found at the Ahar-Banas settlement of Gilund. The stylistic similarities with BMAC material were particularly marked in Baluchistan and the Kachi plain, where in addition there were camel and horse figurines at Pirak after 1700 BC. This must reflect a resumption of links between the Iranian plateau and South Asia across the passes of Baluchistan, making use of pack and draft animals. The second millennium, therefore, although it did not see the complete abandonment of sea trade, saw a reversion to the earlier communications network operating between the northern part of the Indian subcontinent and its western neighbours, the Iranian plateau and southern Central Asia. At the same time, while the Harappans' close integration of the Indus regions was gone, relations were growing and developing between the various communities of the subcontinent.

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The Aryans Settlement and their Economic Progress

Next to these and probably last in the series of migrations in antiquity, came the race, whom tradition regards as the forefathers of the high-caste Hindus of the present day. We would designate this race by the name Aryan, as it was the term they used in describing themselves, as opposed to the aborigines of the country. A systematic historical record of this race is wanting. For we have no account as to the date of its settlement in India during the earliest period; nor have we any systematic records depicting its civilization. We have only the religious literature of the people.

From the early part of the last century, the history of this race attracted the attention of the scholars of the West and evoked in them the greatest possible interest in the subject. The greatest of European scholars devoted years to the study of the culture of the race, as its language, religion, and mythology were akin to those of their forefathers, and its philosophy and literature far outshone their own. Oriental studies had by that time been fairly progressing among the Europeans, who had established a direct contact with the lands of the East, and established their dominions in various parts of Asia. Comparative philology and comparative mythology had as

the result of those studies developed into sciences, while anthropology was gradually progressing to the status of a science.

The conscious European mind, with the help of these sciences, discovered an affinity in race and language, with the Aryans of India, and gradually evolved the theory of the past existence of a race, from which they along with the Indian Aryans and the Iranians, claimed a common descent. The theory received general acceptance and the best brains of Europe were engaged in trying to find out the original home of the Central Aryan stock.

Original Home of the Aryans

The question of the original home of this people has been debated upon for the past hundred years. This subject is a complicated one and owing to the lack of evidence with regard to chronology, has given rise to the widest possible divergence of opinion among philologists, antiquarians and anthropologists. Affinity in language, mythology, or religion, resemblances of racial types, supposed or real, have all been exploited to form bases for theories as to the original location of the Vedic Aryans, along with their supposed Kinsmen, the ancestors of the European nations. At one time Central Asia was supposed to be the original home of the Aryan stock and this opinion was favoured by a large number of scholars. First propounded by J.G. Rhode (in 1820), the theory of Central Asian home received countenance from Pott, Lassen, and Grimm and received strong support from Max Muller in 1859.

Divergences of opinion however soon arose and Adolph Pictet in his 'Origines Indo-Europeennes' tried to place them in the region of the Caspian. He was followed by Justi, the author of the 'Primeval Indo-Germanic Period' and he in his turn was also strongly, supported by Schleicher. Later on, some tried to prove Southern Russia as the original home in view of the supposed analogy between Sanskrit and Lithuanian. Other Scholars, pre-eminently Latham (1854), came to the conclusion that the original home should be looked for in Europe and he was supported by Fick, Benfey and Geiger. Pietrement

placed it in Siberia while Cuno attempted to locate it in the North-European plain (1871).

The controversy is not ended yet, and "it still divides scholars into hostile camps, holding diverse views as to the original home of the Aryans" one holding the Asiatic hypothesis, while the other party preferring an original home somewhere in Europe. From the point of view of philological investigations, the view of Dr. Schrader appears to be free from any party bias. In his work on the Indo-Europeon races, he has submitted several points for consideration. These, along with the solution they call for, may be summarised as follows "the evidence of linguistic palaeontology is far from decisive. The primitive Aryan race was pastoral and semi-nomadic and consequently extended over a vast area. The grade of civilization agreed clearly with that disclosed by the oldest lake dwellings of Switzerland and consequently it seemed to have existed in Europe at an early epoch. The philological evidence thus does not enable us to draw any sharp line of division between the Asiatic and European branches of the Aryan people. A comparative study of the vocabularies and religion convinces us of the close similarity between the diverse branches. The original cradle of the race was in the cold icy regions of the north, since words for ice and snow are common to all Aryan languages."

The above is a summary of the views of scholars who carried on their investigations mainly with the help of philological evidence. This latter was once a favourite weapon with the anthropologists. Of late, however a great change has come. Anthropologists, now-a-days do not attach any importance to the supposed permanence of the relation between race and language. Cuno among philologists demolished the assumption that 'Aryan blood was co-extensive with Aryan speech.' Some of his successors attributed the origin of various languages to a process of evolution and in 1880 they were followed by Delbrūck who denied the existence of any uniform primitive Aryan speech.

In the bands of the anthropologists, the controversy took a different turn. Some of the greatest among them like Broca and

Topinard repeatedly raised their voices against the confidence often put in philological evidence. They have tried to prove the insignificant ethnological value of philological considerations and following them we have a large number of scholars who deny altogether the existence of a primitive Aryan people. This view now-a-days is gaining ground everywhere, and eminent men like Keane have come to regard the term 'Aryan' as a mere linguistic expression "entirely forced into the domain of ethnology by philologists," though some anthopologists still believe in the past existence of communities, who living in the Hindu Kusb and Carpathian, evolved the Aryan mother tongue and had a certain amount of uniformity in their physical characteristic. They believe moreover in the absorption of this race in a hundred other races even in pre-historic times. Hence, in their opinion the use of the word 'Aryan' must be regarded as a misnomer.

The Aryan question is far from being settled. For our purpose, it may not be of so much importance, as it is in the domain of Anthropology or of Pre-historic culture. We may still give the name 'Aryans' to the Vedic Indians, since that was the term they used in designating themselves. As to the original home of these people, something may be said here regarding the evidence of the Vedas. The hymns give us absolutely no clue as to the original home of the composers but they show a south-easterly expansion of the race from the region of the hills of the western Punjab, to the plains eastward. Moreover, they betray a familiarity with the regions of the western Punjab and the region of the Kabul valley as we shall see later on. All these seem to point to the fact that these regions formed the home of the Aryans during the period that some of the hymns were composed. Formerly they must have lived somewhere in the region to the north of the Hindukush along with the fore-fathers of the Iranians, with whom they had much in common, in religion, language and custom and from whom they separated after a bitter struggle, which had its origin probably in religious disputes. Apart from this, we cannot say anything about the home of the Vedic Indians in their pre-Iranian days and an

investigation of that subject must be left to antiquarians and anthropologists.

The Primitive Aryans and the Indo-Aryans

The Rig Veda is our earliest record about the Aryans and a careful study of this book convinces us that by the time of the composition of the hymns, the Aryans had attained the stage of culture which was far from primitive, as also "sharply separated from that of the Western peoples supposed to be related to them" (Die Literature des alten Indian, p. i.). The mass of the people had taken to settled life; agriculture was well advanced; private property in land was established, the family organisation was complete. As we shall see presently, they were acquainted with the use of gold, silver, and another metal, the nature of which will be discussed in a subsequent chapter.

We know very little about the primitive Aryans before their migration into different lands. As yet scholars are not unanimous about the state of culture attained by them at that stage. The subject of the earliest Aryan civilisation was studied by Max Muller and by others, prominent among whom is Schrader, the author of Pre-historic Antiquities of the Aryans. A comparison between the civilisation of the Indo-Aryans and the, Indo-Europeans convinces us of the great advancement which the former had attained upon the civilisation of the primitive Aryans. The primitive Aryans knew very little of agriculture and had hardly any conception of private property in land, while their kinsmen in Vedic India had a good knowledge of both. With the primitive Aryans, the various arts were in a rude state, and they knew one metal only, while the Vedic Aryans had developed weaving, carpentary, working in metals, and probably used metallic currency.

Theory of Semite Contact

Coming to an explanation of the cultural development of the Vedic Aryans, we may at the outset enquire "whence came this civilisation ?" and in this connection the question arises whether it

was due to the contact of the moving Aryans with the cultured Semites of Western Asia or whether it was derived from the cultured but enervated people who were conquered by them in India ? The theory of Semite contact found favour with scholars, certain as early as 1879, Dr. Hommel of Munich tried to show in his learned work "Die Arier Und Semiten" that the Aryan and Semitic nations possessed in common a number of names connected with early civilisation and that they lived in very ancient times in close proximity. The principal words which Dr. Hommel mentioned as Semitic loan-words were the names for bull, horn, lion, gold, silver, and vine. Hommel's views found support from Delitzsch who claimed to have identified 100 Semite roots with corresponding Aryan roots and also from Kremer. Dr. Schrader too believed that the Akadian word Mana (Akin to Hebrew Maneh and Egyptian Mn.) is found in the *Rigveda* (VIII. 78.2). Max Muller in his 'Biographies of Words' (pp. III to 116) tried to refute these arguments, and refused even to admit "any intercourse between the Semitic inhabitants of Babylonia and the Aryans of India, in later though still pre-Vedic times, as asserted by some scholars on the slenderest evidence." Apart from the slender philological evidence, nothing was forth-coming.

Of late however we have historical record proving the contact of these races in the past. The recent researches of the Assyriologists have indeed thrown some remarkable side-lights on this Aryan-Semitic contact in the region of Sumeria, about the close of the 3rd Millennium BC. Records have been discovered showing the existence of an Aryan race, the Kassites, who conquered a large part of Sumeria in 1745 BC and ruled there for centuries. Of these Kassites nothing more is known except the names of some of their kings and gods. Nothing can be made out of these royal names Gandash, Kashtiliash, Ushshi, and Adumetash. But among the gods, some are distinctly Indo-Aryan. Thus the Vedic Marut figures as Maruttash, Surya as Suryash, Bhaga as Bugash. We may hope that a proper study of the Kassite language and phonology will enable scholars to show the real connection of these people with the Indo-Aryans.

Next to the Kassites, we have records also of the Mitannians another Aryan race, who had in the 16th and 17th centuries BC, established a kingdom in Northern Syria where they ruled for a long time and established relations with the Pharaohs of Egypt and other neighbouring princes. The names of the Mitanni kings appear to have been those of an Aryan people. Some of these bear strong resemblance to those of the Vedic Aryans. Of these we may cite the names Artatama, Sabandu, (*Subandhu*) Swardata (*Isvardatta*) and Yasdata (*Yasadatta*). These names are seemingly those of a race speaking either an Aryan, or an Iranoid dialect. Next to these, the discoveries near Boghazkyoi are still more interesting. There has been found a treaty written in cuneiform between the Mittanian King Mattiuaza son of Dushratta and the Hiltite conqueror Shubbiluliuma. As protectors of the treaty, the gods of the two peoples were invoked, and in this list, we find the names of Mitra, Varuna, Indra, and the Nssatyas. These last two discoveries go to prove at any rate, the existence of intercourse in the second Millennial BC between a Section of the Aryan race with the Semites, but what connection they had with their kinsmen in India we do not at present know; and as yet the evidence is not enough to justify us in drawing the conclusion that the Aryan civilisation of India vas influenced by that of the Semites of Western Asia.

Supposed Dravidian Influence

Next we come to discuss the question of the influence of any pre-Aryan indigenous civilisation of India upon that of the original civilisation of the Aryan race. There, certainly was a time when it was supposed by most scholars that the pre-Aryan inhabitants of India were semi-savages who succumbed inroads of the highly civilized invaders. Modern research which with indefatigable energy tries to pierce the veil of dark antiquity has as yet hardly taken up the study of the culture of those races who inhabited India prior to the Aryan settlements, yet as the result of the labours of some of those we have taken up the study of prehistoric culture of India, we know (as we have tried to show) something of a race who cultivated

rice and millets, who knew the art of weaving, domesticated the buffalo, goat and sheep, knew the extraction and use of iron, silver and gold, wore silver and gold ornaments, were probably acquainted with the use of the metallic currency, and had most probably devised a rude system of hieroglyphic writing. The existence of a pre-vedic culture is also attested by some passages of the *Rigveda* speaking of the gold, silver and cattle-wealth of the enemies of the Aryan (RV, III, 34, 9), of their forts and strong-holds and of the dread inspired by their enmity.

This is all that we know of the contact of the Aryans with the Semite and the pre-Aryan culture of India, which might have influenced the civilisation of the Aryans; butas yet, we are not in a position to answer the question whether the Aryans borrowed considerably from these sources. The controversy as to the influence of foreign cultures on the civilisation of the Vedic Aryans is far from being ended cod some of the greatest scholars of the present day are coming forward with their own explanations as to the origin of the Indo-aryan culture. Prominent among these may be mentioned the view put forward by Hall, the author of the "Ancient History of the Near East" who on ethnic and other considerations has propounded a theory that the Sumerians were a branch of the Dravidian race originally living in India. They brought their culture developed in that country and planted it in the land of Sumeria. In a footnote to page 174 of his book, he adds that "the culture of India is pre-Aryan and the Aryan Indian owed his civilisation and degeneration to the Dravidians."

At present however we are not in a position to answer the question as to probability or extent of these mutual borrowings. 'Who borrowed from whom and to what extent' is very difficult to answer. The question of Dravidian influence still remains an open one. No evidence has as yet been furnished to prove any considerable Dravidian influence upon the Vedic Indian culture. Even the earliest hymns of the Vedic describe, as we shall see later on, a highly developed society, lacking in almost all the characteristics of a primitive culture. The evidence of pre-history or of philology does

not help us in substantiating the views of Hall or his followers. The evidence of the latter science shows rather a contrary influence of Aryan culture upon the civilization of the Dravidians. Hall's theory must therefore be regarded as a piece of brilliant conjecture.

So far as our present evidence goes we may take the Indian Aryan culture as being indigenous in its evolution. In the races to which the composers of the Vedic hymns belonged, we have a conglomeration of several highly gifted and intelligent peoples, placed in an environment entirely favourable to the development of man. The amount of culture which the races possessed in common with many other nations of antiquty, was far from being inconsiderable. The history of its origin is lost in the darkness of antiquity. Racial expansion, contact with other peoples, and the favourable influence of the material richness of the land of their habitation, all contributed to accelerate the growth of their culture. As they spread over the whole of India, they learnt to exploit the natural resources of the country. The hostility of enemies not only brought them into contact with diverse elements, but induced, in its turn, an effort for self-preservation and progress, and stimulated the further development of the race.

The culturall development of the Indian Aryans has been a slow and gradual process. We find nothing coming into view suddenly. Take the history of Indian economic life, the history of Indian social development, the growth of Indian philosophy—in everything we find stages of evolution—one succeeding the other—the whole forming a series which gives us a complete history of the development of a race. We find nothing abrupt—nothing abnormal springing into our view, which may justify the existence of any extraneous factor, introducing sudden modifications. In the history of India, we find moreover peculiarities in institutional and cultural development, which stand out unique and have parallels nowhere in this world; and the existence of such elements scouts the idea of any extraneous moulding influence. We proceed next to divide the economic history of India into the chief periods in order that we can make a systematic and comparative study.

Division into Periods

The economic history of India extending from the earliest time to the end of the Hindu period (Cir. 1200 AD) may be divided into the following periods:

Vedic Economic: We take this period as extending from the earliest time to the tenth century BC. For this period, our sources of information are the Vedas, the Brahmaṇas and some of the Sūtras attached to the Vedas, which though composed later, preserve some old and genuine traditions relating to the Vedic period. During the greater part of this period, agriculture and cattle-rearing were the main occupations of the people. Individual owner-ship in land was established and villages remined for the most part self sufficient units. The use of various metals including gold and silver came to be known. Gold and Silver currency came into existence though the introduction of metallic currency did not displace barter altogether. We find also the beginnings of industry and the developments of various crafts (*e.g.* working is metals, weaving, carpentry etc.) and it was towards the end of this period that the earliest unions among craftsmen were formed. As we proceed onwards, trade and commercial enterprise are found to be developed, showing the growth of mutual interdependence between the various parts of the country.

The second or the Pre-kauṭilyan period extending from 1000 BC to 400 BC e.g. from the end of the Vedic period to the rise of the highly centralised monarchy in Magadha. This period is characterised by some of the greatest religious and social upheavals e.g., the rise of Boddhism, Jainism, and various other religious sects opposed to the Vedic religious system. It was also during this period that there grew up an active and direct intercourse between India and some of the nations of antiquity *e.g.* the Semites of Western Asia, the Phoenicians, the Hebrews, and the Persians. We find the growth of towns, the development of town-life, and the rise of the guilds in all spheres of national activity. From the point of views of economic history it was an age of guild enterprise and

marked the transition from Individual enterprise to that of corporate activity, and ultimately paved the way for the rise of state control in economic organisation. The materials for a study of this period are very scanty, our sources of information being some of the Brahmanical Sūtra works (e.g. the Gṛhya, Śrauta and Dharma Sūtras, the Sūtras of Pāṇini), and the early religious literature of the Buddhists. The Artha Śāutra of Kauṭilya, which describes the social and economic condition of the next period, is of great service to us in as much as from the picture given in it of social and economic life, we can get certain data about the condition of the preceding period.

The third or the Imperial Maurya-Kauṭilyan period, which extends from 400 BC to the disruption of the Empire and the Imperial system, ending with the overthrow of the Sunga-Kanvas in the first century. We have a good picture of the social and economic condition of this period in the Arthaśāstra of Kauṭilya as well as in the edicts of Aśoka corroborated by the evidence of the Greek travellers who visited India during the reign of Chandragupta and his successors. The evidence of portions of the Great Epic which belong to this period is also interesting.

State Intervention

From the *Arthaśāstra*, we know that the Maurya state had a definite economic policy, and it

(*a*) aimed not only at administrative centralisation but the definite, establishment of state control on national economic activity;

(*b*) attempted to nationalise certain industries and tried to enrich the state by establishing monopolies in various articles;

(*c*) regulated the working of guilds and crafts; controlled the price of articles, the profits of merchants and the wages of artisans.

(*d*) gave a great encouragement to agriculture by granting loans and advances of money and corn to cultivators, and

bestowing privileges and exemptions on them. It encouraged Indian manufacturers and traders by finding out new markets for Indian goods, by encouraging foreign traders to live and settle in India, and by establishing state factories under the supervision of royal officials which served perhaps as models to the public.

(*e*) established control over the currency by appointing officers to superintend the manufacture of gold and silver coins.

It was during this period that a direct intercourse with the Greco-Roman world and with China was established.

The fourth period again may further be subdivided into two periods e.g. one extending from the beginning of the Christian era to the middle of the seventh century AD which witnessed the establishment of the Saracens in the Near East putting an end to the Indo-Greco-Roman trade and the other from that age to the end of the Hindu period. During the first part of this period, the Indians came into contact with many foreign nations *e.g.* the Parthians, the Indo Greeks, the Śakas, the Kuśānas, who came as conquerors, and subsequently settled down in this country, thus adding new elements to the Indian population and probably many new principles in economic life. The importance of this period lies in the fact that it saw the great commercial and maritime activity of Hindu traders of Northern and Southern India, who in their own vessels sailed up to the coast of Persia, Arabia, and Africa in the West, and in the East to the Islands of the Archipelago and China. Moreover, merchants from Northern India carried on an overland caravan trade with the nations of Central and Western Asia. All this together with the industrial development led to the growth of market towns, and stimulated the further growth of the guilds and their banking activity. They developed into ruling organisations and into municipal bodies. The law of joint-stock organisation was developed. The activity of adventurous Indian traders and princes led to the extension of Indian conquests in Further India and to the establishment of Indian colonies in tire Islands of Sumatra, Java, Bali, and Borneo, and the settlements on the coast of Africa. At home, we find continued

industrial development as proved by the importance of manufactured Indian articles in the Western market, and the prosperity of the merchants and of the guilds. Another important characteristic was the great improvement of Indian coinage after the model of the Greeks and Romans.

From the seventh century to the end of the 12th, there comes a period in which there is hardly any continuity of development. The evils of war and anarchy at home were supplemented by foreign competition abroad, and gradually the Indian trader lost ground. This period thus saw that gradual decay, which culminated in the loss of independence. Indian economic activity dwindled down, maritime trade passed into other hands, and a bitter struggle for existence began. With regard to these periods, something more ought to be said in passing. First of all, we cannot venture to have clear out demarcations either by means of historical landmarks or important events. The periods are more or less overlapping as far as some of the main economic phenomena are concerned. Secondly, the scantiness of material at our disposal often stands in the way of our realizing, to the fullest extent, the importance and nature of the economic phenomena, together with their causes and effect.

Social Organisation

In the earlier period the tribe (Jana) was the highest political union among the Aryans and was probably an agglomeration of several settlements or Viśas and included a fairly large number of villages. The exact relation, social and economic, subsisting between the Jana and the Viś is yet to be found out. As yet it is almost impossible "to state in what exact relation the grāma in Vedic times stood to the Viś whether it was a mere local division, or whether it was "a unit of blood relationship." The question is still further complicated by the existence of an older social division—e.g., that of the gotra, which liter on became the basic principle in the formation of exogamous groups. By the period of the composition of the Buhmanas, the Jana and the Gotra became the real dements of division of the community, while the Viś practically disappeared.

Caste in the Vedas

Whatever might have been the original state of things the social fabric was wholly modified by the rise of the caste system, the germs of which can be unmistakably traced in the hymns of the *Rigveda*, though we have very little of an exposition of the theory of the division of castes in that book. The only explanation of the theory of caste is found in Rig. X. 90. e.g. the Puruṣa sūkta, where the Ṛṣi Narāyaṇa, describes a system which seems to have already existed in his time. Beyond this we have no histoiy—no tradition—about the origin of caste, excepting a late Brahminical tradition in the Viṣnu Purāṇa and in the Harivamśa, which ascribes the division into castes, to Śaunaka, the descendant of Gṛtsamada, the traditional revealer of the second Maṇdala of the *Rigveda*.

BrÊhmaÓa and KÏatriya

The majority of European scholars regard the Puruṣa sukta as a later interpolation. They seem to entertain the view that the *Rigveda* knew very little of caste divisions and they try to explain its rise as being due to the eastern migration of the Vedic Aryans and the consequent rise of complexities in social life. But when we proceed historically we find unmistakable evidences to the contrary, and a careful study of the hymns convinces us that social divisions existed even during the period in which the oldest parts of the *Rigveda* were composed. Thus in some of the hymns, which are admitted to belong to the oldest portions of the *Rigveda*, we find in more than one place, the mention of a threefold or fourfold division of the community *e.g.* Brahma, Kṣatra, and Viś (R.V., VIII. 35. 16-18 and I. 113. 6). Not to speak of this mere reference to a social division we have separate mention of the three classes. Thus the word Brahmaṇa meaning a member of the priestly or the sacerdotal order occurs in more than one place. Similarly we have evidences which clearly point to the separate existence of the fighting class. Their formation into a separate section of the community is proved by the repeated mention of the words *kṣatra* (R.V. I. 24. 11; 136-1-3; IV. 17. I; V. 62. 6;) *kṣatriya* (R.V. IV. -12. 3-; IV. 42. 1; V. 69.

1; VII. 64. 2; VIII. 25. 8), *rajanya*, and such other terms. The mass of the common agricultural people seem to have formed a separate division and was known by the term Viś or as we have it later on, the Vaiśyas. While the servile classes, whether descended from degraded Aryans or from conquered enemies, formed a body to which the name Sudra was given in the *Rigveda*.

The Vedic evidence goes further than this, and a study of hymns admittedly belonging to the older portion convinces us that even in those days, we had, instead of a casteless society, a complicated social organisation with a highly developed priesthood. And further we meet with evidences which conclusively prove not only the existence of the three above mentioned classes, but clearly point to a tendency of subdivision even among these various groups. To take the priesthood first: even in the days of the oldest hymns of the *Rigveda* we find evidence of the development of the sacrificial art, requiring the use and presence of no less than six different priests. Thus in the *Rigveda* 1. 162 (the *Aśvamedha hymn*) we find mention of the Hota, Adhyaryu, Avayaj, Agnīmindha, Gṛāvagrābha and Samstar. Of these, two indeed go to the Iranian Period *e.g.* the Hota (Zd. Zota) and the Adhyaryu (Rathwi). In another old Rik we find mention of Somina Brshmaṇa and of the Adhyaryu (R.V., VII. 103) In another place we find mention of the Gāyatrinah, Arkinah and Brāhmaṇa (*i.e.* the udgatṛ priests). All these point to an early separation in the body of the priestly class itself and the formation of separate priestly orders. In course of time the priestly offices multiplied and became hereditary and each family became the repository of certain formulas or hymns and gradually the priests formed a definite caste by themselves as is proved by the evidence of the Brāhmaṇas and the Upaniṣads.

Among the kṣatriyas, who asserted their predominance over the common people and became the ruling and fighting caste, the tribe remained the basis of division. In the case of the mass of the people originally known as the Viśah, and later on identified with the Vaiśyas e.g., agriculturists and traders—they were delegated to a lower social position. They too show a tendency to subdivide. In

course of time the hereditary following of occupations became the cause of the rise of sub-sections among them and these became distinguished by the importance of their occupation. The Vaiśyas though they became subordinate to the other two castes (anyasya valikṛt—anyasyādya—etc.) were even then regarded as vitally important to the community, and this would appear from the following passage of the Aitareya Brāhmaṇa (1. 9): "They say the gods should be provided with Vaiśyas (Viśas). For if the gods are provided with them men will subsequently obtain them also. If all Vaiśyas are in readiness then the sacrifice is prepared." With the ever-increasing influence of the caste theory, certain gods too came to be regarded as Vaiśyas and according to the Vājasaneyi theory of creation, Gaṇeśa, the Vasus, the Rudras the Adityas, the Viśve-devāh, and the Maruts, were regarded as belonging to this caste.

So much for the early history of the caste system. Its earliest elaboration is, as we have already said, in the Puruṣa-Sukta, where apparently the composer Narāyaṇa seems to describe a state of affairs already existing. As time went on this theory of caste became general and was accepted on all hands and we find it obtaining a place in almost all the Samhitās. It is elaborated in the Atharva Veda, and it occurs in the Puruṣavidhān Brāhmaṇa.

Henceforth references to the four divisions are common. In the Atharva Veda we find reference to the four division of Rājanya, Vaiśya, Sudra, and Arya. (Paippalada III. 5. 7) The Vājasaneyi Samhitā too speaks of the divisions into Brāhmana Vaiśya and Śudra (Vaj. San. XXI.II). In one place we find the four enumerated as Priest, Warrior, Sṣdra and Arya (XXVI. 2.) though elsewhere Arya is contrasted with Dāsa. In other places we have accounts of the creation of Arya, Rajanya and Śudra. Many such theories originated and we find them in the Samhitās and Brāhmaṇas. Thus in the Satap. Br. (II. I. 4) we find an account of the creation of the castes with the formulae Bhuh Bhubah and Svah—The Taitt Br. gives a similar story of the origin of the three castes.

Side by side arose theories which aimed at the definition of the respective duties of the caste. We find, moreover, peculiar formulae

of invocation of the members of the various castes with their special duties, rights and special occupations. These we find fully elaborated in the Dharmasutras. Caste thus brought on a change in socio-economic life. It divided society on the basis of division of duties. As we proceed onwards its influence is more and more felt, though the castes were not as yet socially exclusive endogamous groups. Hypergamy continued to exist and the status of the father determined that of the son. Gradually, however, the mutual exclusiveness of castes increased, and towards the close of the Hindu period mixed marriages ceased altogether. The influence of heredity on the selection of occupation however worked strongly upon the social structure and tended towards the formation of sub-castes and guilds.

The principle of division of labour continued to introduce more subdivisions among the mass of the agriculturist and working population. Thus with the advancement of the knowledge of certain crafts, the men engaged in these were separated from the mass of the population. Of these crafts people, the rathakāra, the sata, and the takṣan, were the first to stand apart from the mass of the people. In the *Rigveda* (X97. 23) we have a reference to a class of people who are called upasta (adhah-say—Sāvana—com). The meaning of this word as well of the word sti is not clear. The Atharva Vedic evidence however shows that the upa-stis included the rathakāra, the takṣan, and the suta, in addition to the grāmaṇī. (A.V. III. 5-6 and 7). The upa-stis have bean taken to be "royal dependents" by some scholars, but Macdonell and Keith pointing out the difficulty in finding out the real meaning sum up by saying that "it is therefore reasonable to assume that they were the clients proper of the king, not servile, but attached in a special relation to him, as opposed to the ordinary population' (Ved. Ind. 1. 96). As we pass on to discuss the distribution of the people, we find that the village was the smallest social and political unit and the social life of those days was based on it. In order to proceed with our study we must begin with an enquiry into the nature of the Vedic village.

The Vedic Village or the Grama

The Vedic village was a settlement in the midst of a well-watered plain or presumably on the side of a river, affording facilities for agriculture or for cattle rearing. Various types of village existed, each type conforming to the peculiar characteristics of the locality, though we have but little details. We have unfortunately no description of a Vedic village, but from scattered references we may form an idea as to its outward appearance and arrangements. In general the village consisted of:

1. the central or the inhabited nucleus which contained the houses of the inhabitants and the land for cultivation (arable land). In this central portion of the village were also situated, probably the quarters of the Grāmanī or the village headman, the chief's domains and the meeting-place of the village assembly.
2. Round the first was the belt of pasture land where the cattle of the village were allowed to graze. According to Roth the Gavya or the Gavyūti was the pasture land (see R. V., I. 25. 16, III. 62. 16; V. 66. 3 etc.).
3. Beyond the pasture land was the Araṇya or uncultivated land beyond the village, with which the grāma is contrasted in Vedic literature. The Araṇya was not necessarily the forest. In some places the Araṇya is contrasted with the Amā (R. V. VI. 24. 10) and the Kṛṣi (A. V. II 4. 5) home and plough lands respectively. It was regarded as a sort of no man's land—the home of the hermits and of out-laws. Probably it was also frequented by the villagers in connection with hunting and sporting.

The outward arrangement of the Vedic village appears to have been similar to the Teutonic mark in its later stage of development during the Anglo-Saxon period or to similar village-types. But we must bear in mind that there were some essential differences between the Vedic village and the early mark as described by the historians. To take the case of the Teutonic mark, it had changed its original

character with the migration and settlement of the conquering Anglo-Saxons in Britain. In the days of Tacitus, the forest and the uncultivated plains were regarded as common property. The arable land, which was under the occupation of the community, was indeed divided into plots, but these allotments changed every year, and were redistributed among the members of the community, according to the social importance or the requirements of the families.

This goes to prove the absence of private ownership in the cultivated land. In the case of the homesteads however the evidence of Tacitus goes to prove without doubt, the existence of private ownership. The history of the Anglo-Saxon period shows a succession of further changes. During the earlier part of that period, private ownership of the homestead remained as before, while excepting the forest and waste, the meadow and the arable land, remained subject to the system of annual allotments. With the system of rotation of crops, two sets of arable land came into existence. This system of communal ownership and periodical allotments did not however last long. It failed to take root or last long. Private ownership became the general rule, and land was appropriated by families and held in severally.

The Teutonic system therefore shows the preponderating influence of a system of communal ownership. But when we come to the Vedic village, we find quite a different state of affairs. To understand the points of difference, in this connection we must classify the land of the village, and discuss the question of communal ownership of land, existing in the Vedic village.

Ownership of Village Land

An enquiry into the nature of the Vedic village-community and the question as to whether the land of the village was owned by the community in general, has already engaged the attention of Vedic scholars. To answer this question a careful investigation is necessary and we must take the three kinds of land *e.g.* homestead land, the arable and the pasture lands separately, and discuss the question of ownership with regard to each.

1. *The Homestead*: In regard to this we find that the earliest available Vedic evidence supports the view that houses were owned in severally. Not to speak of scattered references to private ownership, we have in two hymns (R. V., VIII. 54 and 55) the description of a state of affairs which could not have existed without private property in houses being the accepted principle. In these two hymns the owner of each household offers prayers to 'Vistospati' for immunity, security, and prosperity. Moreover, the hound of Indra (Sarams's son) is spoken of as protecting it. He barks at the thief and the robber, and his teeth gleam like the lance's point. Further-more in another place (*R.V*, X., 34. 10 and 11) an impoverished gambler is made to take shelter in another's house. The sight of other's prosperity and their fine dwelling houses torments him. This proves conclusively that houses were owned in severally, and that the owners had the right of sale or gift. The Atharva-Vedic evidence too confirms the same view. In all descriptions of houses, they appear to have been owned by individuals. As we proceed onward we have the evidence of the *Chāndogya Upanisad*, (VII. 24. 2.) where fields and houses are cited as instances of private wealth. This together with other evidences from Vedic literature goes to prove the establishment of private ownership in houses in very early times.
2. *The Arable Land*: In connection with the ownership of arable land the following facts in the *Rigveda* are to be noted: *e.g.*
   (*a*) In *Rigveda* I. 110. 5 we find reference to the measurement of fields with a rod. There the Rbhus are spoken of as measuring "as a man measures fields with a staff or a rod.
   (*b*) We meet with epithets like Kṣetra-pati, Kṣetra-sā Urvarā-pati, and Urvarā-sā, meaning owners or lords of fields. (Vedic Index. I. pp. 99).

(*c*) Moreover in the *Rigveda* we find the story of Apālā, the daughter of Atri, who prayed to Indra for the fertility and increase of production in his father's field (R. V. VIII. 91. 5 and 6 —Imāni trīni viṣṭapā tāni Indra vi rohaya Sirastatasyorvarā-mādidam ma upodare).

All these evidences may be taken to prove that even by the time of the oldest *Rigveda* hymns, not to speak of later times, individual ownership in the plough-land was fully established. For without private ownership we cannot expect land to be measured or fields spoken of, as objects of private possession. Schrader takes into consideration the measurement of fields already mentioned and in his opinion this points to the existence of private ownership. Baden Powell, one of the greatest authorities on Indian land-tenure, discusses the same question and says that "there is not the least suggestion that the Vedic village was a group of land-holdings held in common or in any other way. But the idea of fields owned by some one, seems familiar from the allusion found to measuring the field with a staff and reed and to there being bare strips of balks (*Khilya*) between two fields." Two other authorities, Macdonell and Keith, in their Vedic Index (see grāma) have discussed the question of ownership of land and after careful investigation, in the course of which they have cited instances of land being measured and spoken of as belonging to individuals, they have come to the conclusion that private property in land was fully established. As regards communal ownership they express the opinion that there "is nothing to show that the community as such owned or held land." Their conclusion is decidedly in favour of individual tenure, "this in effect presumably meaning tenure by a family or an individual." The evidence of later samhītās like the Taittiriya. Sam. (see 11. 2. 1) is more clear. In one passage we are told that a man who has a dispute about land with his neighbour must make offerings to Indra and Agni on eleven potsherds (note I. Keith-Black yajus. trans)

The Pasture Land: As to the pasture land Vedic evidence as yet collected is too meagre to enable us to form any opinion and there

must exist room for differences. Macdonell and Keith deny the existence of any trace of communal property in the sense of ownership by a community of any sort (V. I. p. 100). This indeed is beyond dispute as regards the plough land but at the same time there is nothing to prove private ownership in the grazing land. On the other hand we have before us the fact that nothing is spoken about the pasture in terms which may suggest private control. The herd of the village was entrusted to a common herdsman (R. V. X. 19. 3 and 4), and this goes to suggest that the pasture was enjoyed in common. The evidence of the later legal literature of the Hindus e.g. of the Dharma-sutras and of the Artha-śāstra lends support to the same view (Kauṭilya p. 172 1st Ed. text). To the last day of the Hindu village system and even up to the establishment of the English in India the village pasture was enjoyed by the inhabitants in common, and was never subject to individual ownership. Moreover is those days when villages were situated in the midst of the vast expanse of unoccupied land the question of defining ownership in the pasture did not arise at alt.

Such was the state of affairs. Fields belonging to individuals remained open. In the Vedic literature we find very little about permanent enclosures or hedges between fields. According to some there were bare strips of balks (Khilya) between two fields. But probably fields remained open with occasional barriers set up in times of harvest.

Private Ownership

The establishment of individual ownership was most probably due to the Aryan migration and settlement. In Teutonic and Anglo-Saxon society we find a similar change. Thus according to Schrader (Prehistoric Antiquities P. 289) private property in land was unknown among the Indo-Europeans before the migrations. Later on with settlement in Western Europe it became established among them. By the time of Tacitus however there arose communal cultivation and periodic allotments of land according to the dignity of the members of the community. With the establishment of the

Saxons, a branch of these Teutons in England, private ownership of land was fully completed. In the case of Vedic Aryans we may infer that in the course of migration and settlement, they passed through successive stages of development and by the time of the Rig-Veda private property in land was fully established.

Nature of Private Ownership

We come next to discuss the nature of private ownership *e.g.* whether the land belonged to the head of the family, or to the members of joint families in common. As yet we have very little of precise information as to the legal relationship subsisting between the head of the family and the other members of the same. From some passages of the Atharva-Veda we know something about the existence of joint families, members of which had an equal interest in the family property. Not only do we find a repeated mention of the words Sajāta and Samāna meaning clansmen or men of the same family but in one hymn (A.V., III. 30.), we find prayers to the gods for unity in the family. There the expressions "let what ye drink, your share of food be common" and 'united obeying one sole leader—one minded be you all' go to prove large joint families, in which all the members had their shares in the common property.

On the other hand, we have conflicting evidence furnished by some other passages. These prove the almost autocratic authority of the father or the head of the family over the other members. According to the evidence of such passages the father who often exercised tyrannical authority over his children, could disinherit them, sell them to slavery or inflict any punishment he liked. As an instance of such paternal authority Zimmer cited the story of Rjrsva, who was blinded by his father for having destroyed the sheep and cattle of his subjects. The story of Viśvāmitra and his fifty sons who were outcasted by him and expelled, as also of the sale of Śunahśepha who was sold by his father Ajīgarta in lieu of 100 cows, all occurring in the Aitareya Brāhmaṇa. (VII. 15 and VII. 18) are examples which point to the autocratic authority of the head of the family.

It is however doubtful as to whether these are instances which give us the real state of affairs or were arbitrary exercises of authority. On the contrary there is evidence to prove that it was an accepted principle that even during a father's life-time the sons could divide property, and in that case the division was equal. This would appear from the story of Nābhanediṣṭa, son of Manu. He demanded his share, when his other brothers had divided their patrimony. His claim was accepted in principle, though many obstacles intervened in his regaining his lawful share. The story shows undoubtedly that even daring the lifetime of the father, sons were regarded as having a vested interest in property, from which they could not be excluded at will (*Ait. Br.* V. 14). *The Taitt-triya Samhitā* (II. 6. 1) indeed speaks of a father making common property with a son.

Land Transfer: In some of the Brāhmaṇas we find a decided feeling against land transfer (*Sat. Br.* XIII.) though we have passages which point to the existence of the practice of plots of land being made over to others as gift, specially to Brahmins who officiated in sacrifices. (*Śat. Br.* XIII. 6. 2. 18, XIII 7. 1. 13 and 15). From another passage of the same book which deals with the Gārhapatya hearth, we know that the Kṣatriya clansmen apportioned land given to them by a (Kṣatriya) king, with the mutual consent of all (VII. I. I. 4). In the case of houses they could be sold or given away as we know from the story of the gambler in the *Rigveda* who had lost everything including his dwelling-house in course of gambling. Later on when we come to the Chāndogya Upaniṣad we find fields and houses regarded as object are of private ownership (kshetrani and ayatanāni VII. 24. 2.) and easily transferable. The next important point for us is to discuss the relation between the ordinary cultivator, and the king in regard to the land which the former tilled— *i.e.* whether the ownership of the land resided ultimately in the king or whether the cultivator was a free proprietor.

Royal Rights in Land: From the evidence at our disposal, it is very difficult to decide as to whether the king was regarded as the owner of the land. Some scholars have leaned towards the theory of

royal ownership of the soil. But as a matter of fact they have hardly relied upon clear evidence, and probably they have been misguided by later Western analogies. As yet there is nothing to prove that in the Vedic period the king was ever regarded as the owner of the stale territory. The *Rigvedic* evidence shows that as guardian of his people he could claim his tribute only (Vali—See R.V. X. 173) from his subjects. Nothing more is said of his being the owner of the soil. Later on in the Atharva Veda we find prayers for the grant of a share in villages to the king (A.V. IV.22.2) and this shops that he was not regarded as the sole owner of the villages, but that the people granted him some land for the maintenance of his authority and dignity. The evidence of this hymn may be relied on and there could have been hardly any room for this prayer if he was already the master of the soil. The truth seems to be that during that remote period when there was plenty of land for settlement and cultivation the man who first cleared it and tilled it had every right to be regarded as its owner, and there was hardly any scope for the elaboration of fine legal theories.

Another important topic to be discussed in connection with the land is, as to whether a landed aristocracy *e.g.* men who stood as intermediatories between the king and the common cultivator existed. As regards this we have nothing in the *Rigveda* which proves the existence of such an aristocracy. But when we come to the later Samhitās we have some distinct evidences, which throw light upon it. Thus in the Taitirīya Samhita we repeatedly meet with the word Grāmakāma and the word Grāmin (II. 1. 3. 2.) i.e. one desiring the ownership of a village) in connection with special sacrifices for the attainment of specific desires (see Tait. Sam. II. 2.8.1 and 11. 1.).

The significance of these two passages, is that, they suggest that men could attain the lordship of villages either through royal favour or through the acceptance of the villagers. In the first case it is difficult to decide as to what real rights the king bestowed on this overlord of the village. The point does not seem to be quite clear. The authors of the Index believe that what the king granted was his regalias or sovereign right of levying contribution and probably

nothing more. In the other case the man attained nothing more than a social pre-eminence, in as much as we know from the passages in which the word occurs that it required the sanction of sajātas and samānas, and this shows that no real rights were parted with, by the sajātas and were vested in him. When we come to later literature we find instances of gifts of villages by kings. The *Chandogya Up*. contains the gift of a village by king Jānasruti to Raikka (*Chh. Up*. IV. 2.4). In subsquent periods such gifts of villages were common and this contributed to the growth of the Mabāślas whom we find in the Upaniṣads and in early Buddhist literature. The evidence of the Buddhist literature shows—as we shall see later on that the Mahāsalas enjoyed the revenue of villages, and may be regarded as occupying the position of land-lords.

As to the King's revenue we find the earliest reference to it in the Atharva Veda (IV. 22.2) where Indra is invoked to give him a share in villages, kine and horses, and to leave his enemy without a portion" (Emam bhaja grame aśve ṣu goṣu niṣṭham bhaja yo amitro asya. A. V. IV. 422.2). Perhaps in those days the royal revenue was raised from (voluntary contributions. As to any fixed share of the produce being paid to the king as tribute, the evidence of a passage of the Atharva Veda (III. 29.1) is significant. In that hymn in which immunity from taxation in the other world is prayed for, we hear of the kings sitting by the side of Yama, (Yad rājāno bibhajanta iṣṭāpurttasya ṣodāśam yamasysmī sabhāsadah. *A. V.* III. 29.1.) dividing among them the sixteenth part of hopes fulfilled in this world. This may point to the royal share being assessed to a sixteenth part of the produce in those days.

Idea of Village Corporation

Most of the villages were founded by settlers under some leader. No more details are definitely known of the Vedic village, except that there was some place of common gathering where the people assembled for dice-play, amusement or for transacting business. In times of war the people of the village assembled under their leaders and fought for the safety of their hearth and home. This is proved

by the word Sangrama, occuring in Vedic literature. The word primarily meant, an assembly of the village folk but later on it came to mean a war gathering, and this sense has survived in classical Sanskrit.

All these facts cited above go to prove the rise and growth of an idea of village corporation. For though private ownership was established in the homestead and the arable land, the pasture, and beyond that, the Araṇya remained subject to a sort of communal ownership. Again (even it we exclude the discussion of the question of consanguinity) the village folk regarded themselves as a united body, as opposed to outsiders, and this is proved by the tendency against land-transfers, the operation of which existed even to the days of the Artha-sāstra, where we find the existence of a right of pre-emption residing in a co-villager in the matter of sale of a house or a plot of land in the village. This was the state of things in the Vedic village. The name village-community may be applied to it, if that may be taken to mean a body of cultivators located in one particular area "bound to- gather by certain customs, and with certain interests in common, possessing within the village the means of local government and of satisfying the wants of life without much reference to neighbouring villages".

The administrative machinery of the village goes to support the above corporate character. At the head of the village was the Grāmanī who was most probably an elected official. In the Grāmyavādin who was a village judge, we find another instance of the corporate character of the village (Taitt Sar. II. 3.1.3; Kāt. Sam. XI 4 and Maitrā. Sam. II. 2.1). The village officials transacted the of the village. They had judicial and magisterial powers and these subsisted up to the last days of Hindu independence. Villages thus became the basis of social life and gradually as the Aryan settlement advanced they became more and more numerous. They were situated all over the country in the midst of the fertile plain. But a large part of the country still remained forest. The Aitareya and Śatapatba Brahmsṇas mention Dīrghāraṇyas (Ait Br. III. 44, VI. 23, Sat Br. XIII. 3. 7. 10) but these were gradually cleared. According to the Aitareya Br.

villages became numerous in the west, while there were forests in the East (III. 44). The Jaiminīya upaniṣad Brāhmaṇā mentions Mahagrāmas, but gives us no details.

Growth of Towns

Villages were connected by roads which were generally insecure and infested by robbers and outlaws. We have no details showing the great roads which connected villages of distant localities though only the word Mahāpatha occurs in later vedic literature. Most of the villages were probably open though we hear of pur or forts mentioned in Vedic literatures. Most probably these forts were built inside villages, and were made of stone and offered security to the people in case of ravages by enemies. We have occasional references to forts of iron or those having hundred walls but we cannot form an exact idea as to their construction, nature and size. Towns most probably did not exist in the early Vedic period. Pischel and Geldner thought that there were towns with wooden walls and ditches. Kaegi thinks that there were no towns in the *Rigvedic* period. We have no names of Vedic towns, though the word Nagara meaning towns occurs later on. One passage of the Śukla Yajurveda seems to make some doubtful reference to a town named Kāmpila (Vāj. Sam. XXXIII. 18).

But when we come to the Brāhmaṇa literature we find the word Nagara frequently used as well as the epithet Nagarin. The Taittinya Brāhmaṇa describes Jānaśruteya as a Nagarin. In the same literature we have epithets derived from place names, which later on became big towns. For instance we have the epithets Kauśamveya, Kauśalya, Vaidarbha and all these may be taken to mean the gradual growth of big centres of trade and culture which later on grew into towns.

Development of Agriculture

Agriculture was the principal occupation in the villages. Its adoption took place undoubtedly at a very early age, though we have nothing, which can tell us as to the period when it was

adopted. Historical evidence goes to prove that among pastoral peoples or even semi-savages, agriculture in some form or other has been practised. In regard to the Indo-Europeans, Dr. Schrader who tried to estimate their agricultural development with the aid of Philology, came to the conclusion that these peoples had a considerable amount of agricultural knowledge; not only did they cultivate millets, oats flax, and beans but had devised a rude wooden plough. Coming to the Indo-Iranian period when the Vedic Aryans are supposed to have lived along with the Iranians, we find that the Indo-Iranian agriculture was considerably developed and this is proved by a careful comparison of a number of Vedic and Avesta words relating to agriculture. The evidence of the Vendidad shows indeed, the importance of sheep and cattle-rearing among the old Persians as would appear from the repeated references to flocks and herds, but we have direct reference to agriculture also (Vendidad. Fas. III. 23 and 24; and also Vendidad XIV. 10). Of the two passages cited the first speaks in terms of praise of those "who cultivate most corn-grass and fruit," while the other speaks of the "gift of a plough with share, and yoke and oxen, whip, a mortar of stone, and a hand-mill for grinding corn." Zimmer held the same view and Keith and Macdonell are of the same, opinion. They point out the similarity existing between Sanskrit Yavam kṛs and Zend Yayo karesh, and between Sk. Sasya and Zd. Hahya (Vedic Index, kṛṣi I. p.181.)

From the evidence of the Vedic hymns we may safely draw the conclusion that by the time even of the earliest hymns, the Aryan masses had settled down to a peaceful agricultural life though some sections like the Vrātyas retained their wandering nomadic habits for a long time (Pafica, V. Br h. XVIII). In regard to this the *Rigvedic* evidence is conclusive. Thus the words Kṛṣṭi and Carṣaṇi (used in the plural) are applied to people in general (R. V, 1. 52, 11; I. 100. 10; I. 160. 5; 1. 189. 3; III. 49. I; IV. 21. 2, etc. and A.V, XII. I, 3 and 4. For carṣaṇi R. V, 1. 86. 5; III. 43. 2; IV. 7. 4, V. 23. 1; etc.) In other places too the words Pafica kṛṣṭayah, Carsaṇayah, are applied to denote the great tribes (See R. V, II. 2.

10; III. 53. 16; IV. 38. 10; X. 60. 4; etc: For Carṣaṇayah V. 86.2; VII. 15.2; IX, 101.9; etc.). The use of the root kṛṣ is found in many places and the word kṛṣi occurs in innumerable places of the Atharva Veda and the Taitt. Samhitā. That agriculture had become the chief occupation of the people is further proved by innumerable prayers for rain (R. V, VII. 101.3; X. 105, 1; X. 50, 3; IV. 57. 1;) or those addressed to rivers to increase the fertility of the soil and to further the growth of grains and plants. These speak in clear terms of the needs of an agricultural population and show how much they depended on it. Some more light iṣ thrown on this point by a passage of the tenth Maṇdala (X. 34. 13) in which a man advises the ruined gambler, to give up gambling and to engage in agriculture which is sure to bring him wife, wealth and cattle.

Apart from scattered references to agricultural operations the *Rigveda* contains some detailed description of agricultural methods in the Kṛṣi Rk (R. V, IV. 57). In that hymn attributed to Bāmadeva, and addressed to Kṣetrapati, Sunāśira, and Sita, prayers are offered to these deities, so that, there might be timely rain and that the fertility of the soil might be increased. We have next, a description of the ploughing of the field by means of plough drawn by oxen, and driven with goads. Lastly Indra is invoked to help in ploughing and Puṣan is asked to drive the plough. More information is furnished by scattered words and passages. Thus one passage (X. 23). speaks of clearing of forests, two others (X. 94; X. 101 3 and 4) speak of the sowing of seeds after ploughing.

The ripe grain was cut with the sickle (Dātra, Sṛṇi). The harvest (Yava) was collected in bundles, and taken home in batches (X. 131. 2). The bundles (Parṣa) are then described as being beaten or trampled upon, on the floor of the granary or Khala (X. 48. 7), The next operation *e.g.* the separation of the grain from straw was done with the help of a sieve or a winnowing fan, (R. V, X. 94. 13). For measuring the grain a wooden vessel Urdara was used (R.V, II. 14. 11)

Kaegi sums up the whole operation by saying that "before sowing, the ground was worked with plough and harrow, mattock

refer and hoe" (*Rigveda*. p. 13) We have moreover (refences to prove that occasionally the water of wells or of canals was used in watering fields. (Vedic Index I. 181 & 2). The *Rigveda* gives us no description of the plough except that it was drawn by oxen (X. 106). According to a tradition the twin gods (the Aśvins) were the first to teach Manu the use of the plough and the cultivation of Yava. (R. V, I, 117.21.) In that passage the word, Manuṣāya according to Sāyana refers to the Great Manu.

Nothing more is known of agricultural operations from the *Rigveda*. It is only when we come to the later Samhitās that we have some more details about agricultural opertions. The Atharva Veda contains the tradition that Pṛthī-Vainya was the inventor of ploughing and agriculture (A.V, VIII. 10.24). In the same book as elsewhere we hear of the employment of a larger number of oxen to draw the plough *e.g.* from six to twelve (A.V, VI. 91. 1), indicating either the practice of deeper ploughing, or the hardness of the soil. It mentions also the use of natural manure (III. 14. 3 and XIX. 31. 3). The seasons for agriculture are mentioned in the hymns of the Taittirīya Samhitā, bearing on agriculture and ploughing. (See IV. 2. and VII. 2. 10). According to that book barley "ripened in summer, being sown in winter, rice ripened in autumn being sown in the rains, while beans and sesamum ripened in winter and the cool season." The Śatap. Br. mentions only the operation of ploughing, sowing, reaping, and threshing (1. 6. 1. 3). The Tait. Sam. further mentions that there were two harvests a year (V. 1.7. 3 — "May they cook he says twice, therefore twice in the year the corn ripened,"), and according to the Kauṣītaki Br., the winter crop was ripe by the month of chaitra (XIX. 3). The mention of a double crop shows a distinct advance in agriculture, which may be attributed partly to the larger use of manure, and partly to the knowledge of the cultivation of a large of grains and plants which grew in different parts of the year. Whether this rotation of crops made the people entirely dispense with the practice of keeping fallows is a question yet to be decided. In the absence of evidence to the contrary we may presume that the custom of keeping fallows

bad gone out of practice. The cultivation of two varieties of rice *e.g.* the Aśu and the Mahia-vrīhi points to the same.

The agriculturist had to take great precautions against injury to his crops. In addition to drought and excess of rain many other hinderances to agriculture existed and the agriculturist suffered owing to varieties of these; Occasionally inundations swept away the seeds; lightening often injured crops and plants; moles, rats, various birds and insects destroyed the seeds or injured the sprouts. The *Rigveda* (R. V, X. 68.1.) speaks of the driving away of birds from fields. In the Atharva Veda we find spells for destroying the Jabhya and Tarda, (A.V, VI. 50. 142. etc.) for counteracting droughts, lightening, and inundations (A. V, VII. 18).

Cultivated Plants

As regards the cultivated grains of the earliest period the *Rigveda* mentions only the Yava and the Dhāna, (Vedic Index I. 398) or Dhānya (R. V. VI. 3 & 4). The meaning of the word Yava according to some European scholars (Vedic Index. II. 187) is not quite clear. They hold that word perhaps meant any kind of grain and not merely barley. But this meaning appears more probable, in as much as barley is one of the grains to be cultivated earliest and it suits all climates. According to Indian commentaries Yava means barley only. The meaning of Dhāna is similarly obscure. Scholars take this word to mean grain in general, though in later literature it means rice. The question of rice cultivation in the *Rigveda* is disputed. European scholars interpret Dhāna and Dhānya as meaning grain in general and not rice, which according to them could not have been known, since rice was originally indigenous to S.E. India. In the Atharva Veda Vrīhi is repeatedly mentioned (VI. 140. 2; VIII. 7. 20; IX. 6. 14;) as also the word Taṇdula (X. 9 26 etc.). The same Veda (III. 14.5.) speaks of Śāriśāka, which Weber took to be nothing but Śāli.

The Taitt. Sam. (I. 8. to 1) as well as the other Samhitās distinguish between the dark, swift growing Aśu, and the Māhā-vrihi. The Satapatha Br. mentions the swift growing Plāśuka

(V. 3.3.2). Speaking generally, in the Atharva Veda or other later Samhitas we End a gradual development of agriculture and multiplication of cultivated plants. Thus in the Atharva Veda we find not only barley (Yava) and rice (Vrīhi) repeatedly mentioned but also sesamum (A. V, XII. 2. 54; XVIII. 3.69, XVII. 4) beans (M ṣa) sugarcane (A.V. XII. 2) millets, Śyāmāka and some other varieties of rice which came to be extensively used and became the staple food in a large locality (A.V, IV, 35; X.3; XII.3; XII. 4 also A.V, VII. 10.24; R.V. VII. 19). The innumerable harvest hymns and prayers for rain (AV, VII. 18 & 39. etc.) and agricultural prosperity, (A.V. VI. 142) show that at the time of the Atharva Veda 'agriculture had extended and had become the most important occupation of the people. In the same Veda, in addition to prayers for rain and good weather, we find mention of the weather-foreteller or—the Śaka-dhūma (A. V, VI. 128. 1-4) and a distinct mention of canal digging.

The *Yajur-Veda Samhitas* and *Brāhmaṇas* give us more information on cultivated plants. Thus we find that the white Yajus mentions wheat (Godhumāh) rice (Vrīhi) barley (Yavās) Māṣa, Tila, Mudga, Khalvas, Priyangu Aṇu, Śyāmāka, Nivāra, and Masura see Vāj. Sam. XVIII. 12; XIX. 22; and XXI. 29) all these words used being in the plural. The Taitt. Sam. distinguishes between black and white rice and speaks of the Aśu-dhānya and the Mahā-vrīhi (Taitt. Sam. II. 3. 1, 3. Taitt. Br. 1, 7, 3, 4). Next we have in the Vṛhadāraṇyaka Up. (VI. 3. 12) a mention of the ten cultivated grains (Grāmyāni) *e.g.* rice and barley (Vrīhi-Yavās), sesamum and beans, (tila-māṣās), Anu and Priyangu, (Anu-priyan-gavah), wheat or maize (Godhūmāh), and lentils Masūra (Khala-kulāh).

In addition to the grains and plants enumerated above, other plants were cultivated or were valued for their medicinal or other properties. In the Vedic literature we find a division of the vegetable world into Oṣadhi, Vīrudh, and Vṛkṣa. The Oṣadhis were valued for their medicinal properties. In addition to the Soma plant valued for its juice used in sacrifices, we hear of the great properties of Apsmgrga, Kuṣṭha, Nalda, and other plants. Bhanga was known for

its intoxicating property and is mentioned in the *Rigveda* and in other Samhitās. Śana valued for its fibre, is mentioned in the Atharva Veda. In addition to these we find mention of the Eraṇda and Sarṣapa, being cultivated in order to extract the oil from the seed, the oil of Tila being also mentioned in the Atharva Veda. Of other plants we have the Alabu, urvaru and Amalaka, the fruit of which was largely used. Of the more important trees we bear of the Aśvaṭṭha, the Khadira, the Vilva, the Nyagrodha, Udumvara, Aśvagandhā, Simbūla, and the Amalaka, Fruit trees are mentioned but we have very little of details about them. Moreover it is doubtful whether they were planted or grew wild. Of fruit trees the Kulvala, Karkandhu, and Badara are mentiond in the Śatapatha Br. (V. 5.5.52). Certain plants came to be regarded as sacrificially unclean.

Agricultural Implements and Irrigation

Of agricultural implements, we have repeated mention of the plough (Langala, Sīra), but we know very little about its construction and shape. All that we know of the plough is, that it was large and heavy lad required two, four or more oxen harnessed to it to draw it. In the Atharva Veda and other Samhitās the number of oxen used, is increased to eight or twelve, and this shows that a heavier plough was used, perhaps owing to hardness of the soil. It was sharp-pointed with a well-smoothed handle which was known as the Tsaru. It was also known as Śuna and Sīra, or Sits. The plough-share was called Phāla. In addition to the plough we have mention of other implements e.g. the Khanitra (shovel), Dātra, and Śṛni (sickle), Titau (sieve) and Sūrpa (winnowing fan) in various places. According to Kaegi the mattock and the hoc was also used. The Urdara or grain-measuring vessel has already been mentioned (see R. V, II. 14. 11.)

As to irrigation something has already been said. Of course cultivators depended upon rain, or where rivers were close by they watered their fields with the water of the liver. Where there was scarcity of water people had to depend on the water of wells and the *Rigveda* contains references to the water of wells being used for

watering the fields and we have repeated mention of the word Avata meaning a well (see R. V, 1. 85. 10; 1. 116. 9; IV. 17. 16, VIII.49. 6; X. 25. 4). The water seems to have been raised by means of a wheel (Cakra) to which buckets of wood were fastened. The evidence of another passage (R.V, VIII. 69. 12) shows that sometimes this water was poured into channels and sent to different parts of the field. (Vedic Index. I. 39). Muir (Sans. Texts V. 465-66) took the word Kulya to mean artificial water-ways which carried the water into reservoirs.

In addition, to these the same book contains at least one reference to canal digging. When we come to the Atharva Veda, we find a description of canal digging (A. V, III. 13). The newly-cut canal is described in figurative language as a calf to the river which is as the cow. The Kauśika sūtra (XL. 3-6) give us the practical part of the ceremony of letting in the water. At first some gold plate is deposited on the bed, a frog with a blue and red thread round it, is made to sit on the gold, and after this the frog is covered with Śevala (an aquatic plant) and water is then let in.

Agricultural Labour

As to agricultural labour, most probably it was in the hands of the freemen house-holders themselves, who worked along with their sons and relatives. The early hymns show a state of affairs in which agriculture was looked upon as in honourable occupation. Wealthier people of course employed servants, or labourers recruited from the landless poor or the aborigines in connection with the various agricultural operations. As the Aryan occupation extended over the country and the people became rich, slaves came to be employed. Slaves are mentioned in the *Rigveda* and in other Samhitas, but we have no evidence to show that they were largely employed, or that slavery became the basis of Vedic husbandry. On the other hand prayers for male children, show that they were welcomed in assisting their fathers in their field operations. As yet there was no stigma attached to Brāhmaṇas engaging in agriculture, what to speak of Kṣatriyas or Vaiṣyas. Much of the subsidiary labour allied

to agriculture was entrusted to the women of the house. Gradually, however, a class of landless labourers arose and these earned their living by working in other's fields. With division of labour various classes of workmen came into existence and the *Rigveda* mentions two types Dhānyakṛt and Upala-prakṣini. In the Atharva Veda we find Dāsis or slave girls employed in husking and threashing operations.

Agriculture thus had become the main stay of the people and consequently we have in the religious literature, all sorts of prayers and spells to remove hinderances to the proper growth of crops. As already mentioned we have in the Atharva Veda a large number of such prayers, directed against the failure of crops either owing to drought or lightening (A. V. VII. 11), excess of rain or other causes. In addition we have charms for the hastening of rains (A. V, IV. 15) for the destruction of vermin, insects, (A. V. VI. 50 and 52) or locusts and for fair weather (VI. 128). Some of these hinderances occasionally caused great disaster to the population, though we have no detailed account in the early Vedic literature describing these calamities. In the Chandogya Up. we have the story of a famine caused by the destruction of crops by locusts (see Chandogya Up., 1. 10, 1-3). According to the account preserved in that book, owing to disaster caused to the Kuru country by the destruction of harvest by locusts (Mataci) a sage named Chakrāyana had to migrate to a neighbouring country along with his young wife and had to live on Kulmāṣa. Famines thus often caused migrations and wanderings on the part of the distressed population. Unfortunately we have no graphic description of a famine during the Vedic Period.

The Agriculturist's Ideal

The agriculturist's ideal is described well in all the hymns for prosperity and increase, which we find in the Atharva Veda and the other Samhitās. Almost all the hymns speak in the same strain—agricultural prosperity, a bumper harvest, increase of cattle, and accumulation of wealth. It will be impossible to quote all such prayers for protection and prosperity but the harvest hymns of the

Atharva Veda throw light on the requirements of the peasantry and their simple ideas of happiness. The following harvest song of the Atharva Veda (A.V, 111. 24.) speaks of the ideals of the peasantry.

1. The plants of earth are rich in milk, and rich in milk is this my word. So from the rich in milk I bring thousandfold profit.
2. Him who is rich in milk I know. Abundant hath be made our corn.

   The God whose name is Gatherer, him we invoke who dwelleth in his house who sacrifices not.
3. All the five regions of the heavens, all the five races of mankind,— As after rain the stream brings drift, let them bring increase hitherward.
4. Open the well with hundred streams, exhaustless, with a thousand streams.
5. O Hundred-handed, gather up. O Thousand-handed, pour thou forth.

   Bring hither increase of the corn prepared and yet to be prepared.
6. Three sheaves are the Gandharvas' claim, the Lady of the house hath four.

   We touch thee with the sheaf that is the most abundant of them all.
7. Adding and Gathering are thy two attendants, O Prajāpati.

   May they bring hither increase, wealth abundant, inexhaustible. (Eng. trans. by Griffith).

Sheep and Cattle-Rearing

In the earliest period e.g. before the period of definite settlement cattle-breeding was one of the main occupations of the Vedic Aryans. Even after the development of agriculture, cattle remained their principal wealth. In the earliest period forays and raids for cattle, were common and in the *Rigveda* we have ample evidence of this. In the Śata-patha Br. in connection with Royal coronation the cow

raid is mentioned, this being a relic of older days and customs. Throughout the whole of Vedic literature we find innumerable prayers for the increase of cattle. There are one or two prayers addressed to Puṣan to find out new pastures and to lead the shepherds there.

The cow was invaluable to the Vedic Aryans for its it great economic value and for a long time remained even the standard of value in ancient India. Individual ownership was known very early and the Samhitās speak of branding and the use of marks to distinguish cattle belonging to various owners. Even in the earliest period we find mention of large numbers owned by individuals. In the Dāna-stūtis find mention of gifts of large herds of cattle by princes and rich people. The principal domestic animals in the Vedic period were the cow, and the buffalo, the horse and the ass (also the mule and the donkey), the Camel, and the sheer and goat

Cow: From the earliest time the cow was regarded as the most important and most valuable of the domestic animals. It was domesticated probably in the Indo-European period as is proved by the similarity of Sanskrit Go (Gaus. Nom.) with Slav. Liu. Gow, and Zend Gao. In the Indo-Iranian period the cow was highly prized and was held in high veneration. The economic importance of the cow and its products was so great that the animal was absolutely indispensible to the Vedic householder. To supply the needs of Vedic households large herds were maintained. The cow-stall was situated within the precincts of the house and the kine were taken care of, by the inmates of the house. The meaning of the words Duhitṛ shows that the work of milking was at one time entrusted to the daughter of the householder. Every morning the kine were sent out to the field for grazing, and in the evening they were kept in the Goṣṭha. While grazing they were separated from the calves and were put under the charge of the herdsman. They were generally milked thrice a day. In addition to the milk of the cow and its various preparations the flesh was at one time used for food (Vedic index 1.231; also U.C. Vatavyāla article on Beef-eating in the Veda Praveśika. also Dr. R.L. Mitra's article on the Practice

of Beef-eating in ancient India in the Indo-Aryans). From the evidence of Vedic literature, it is clear that in early times the flesh of the cow as well as that of the bull, was largely taken, and in connection with all important ceremonies and sacrifices, we find the regular slaughter of these animals enjoined. The slaying of the Mahokṣa and the Mahāja was regularly prescribed for the feeding of the guests even in some of the Gṛhya Sutras. In the Vedas the word Goghna (the cow-eater—according to some scholars) is applied to mean a guest. In the Taitt. Br. we find the division of the limbs of the slaughtered cow among the various gods descried in detail. The cow and the ball were slain on occasions of marriage and in certain forma of Śradhas *e.g.* the Māmsāsṭakā. The cow was sacrificed to the manes. From the Śatapatha Br. (III. I. 2. 21.) and the Taitt. Br. (II. 7. 11. 1) we know that Yāgñavalkya and Agastya were described as taking beef. On the other hand we find a decided tendency against cow-slaughter even in the *Rigveda*. There the words Aghṇya and Aghnyā, applied to the bull and the cow, occur many times (16 & 3 times). The very use of these words goes to show that public feeling looked upon the slaughter of these animals as injurious to society and in the Śatapatha Br. we have a long discourse (Śatap. Br. III. 1. 2. 3.) on the non-advisability of cow-slaughter, and we find the injunction "let him not eat the flesh of the cow or the ox for the cow and the ox doubtless support everything on earth."

The various articles of food obtained from milk are described in the Śatapatba Br. (III. 3.3.). In addition to these the fat of the cow was used for various purposes. The skin served the purpose of a mattress and on the occasion of occasion marriage the newly-married wife had to sit on a cow-hide along with her husband. Cow-hide was used for manufacturing various articles. Thus in the *Rigveda* we find mention of Dṛties (leather bags to hold fluids). It also (VI. 48. 18) refers to bags of skins in which curd and wine were kept. Some passages (VI. 49) refer to chariots covered with cow-bide. The evidence of some of the later works, (Pañca. V. Br. XIV. 11.26.; and XVI 13. 13.) proves the use of these leather bags

for holding milk, wine and other liquids. From the earliest period the cow was used as a standard of value in purchasing articles. Thus in the *Rigveda* we hear of the buying of an image of Indra for a few cows. In the Brāhamaṇas too, we find Soma bought with a cow one year old and immaculate. Oxen and bullocks were used for ploughing, for drawing wagons, and for carrying loads. For the purposes of grazing, the cattle were placed under a cow-herd who after grazing the cattle led them to the respective houses (R.V, X. 19. 3-4).

The Buffalo: Like the cow the buffalo was a useful animal. In addition to its milk, its flesh was probably eaten (see R.V,V. 29.8; VI. 17. 11; VII. 12. 8; VIII. 77.) In one of the Vedic passages quoted above we find Indra slaying buffaloes, the flesh of the slaughtered animal being used for food.

The Horse: (Aśva Haya, Vājin, Arvant, etc.). The horse too, was probably domesticated in the Indo-European period and this is proved by the similarity between Skt. Aśva and Sl. Liu. Aszva. By the time of the *Rigveda*, the horse *e.g.* Aśva had become one of the most important of domestic animals. In the *Rigveda* it is always praised for its speed. Its importance was due most probably to its use in war, and we find them largely used for drawing chariots and carts. They were also used for riding and in the races which formed a very important and favourite game of the Vedic Aryans. In the Brāhamaṇas we have innumerable references to the gods engaging in horse-races to win prizes. In Vedic warfare cavalry was probably used, (see R.V, II. 34. 3 and V. 61). The Aśvins and the Maruts were fond of riding. In the *Rigveda* (IV. 39) the horse is described in connection with the invocation of the Dadhikra, and it had probably a sacred character. The sacrifice of the horse was regarded as being of the highest religions merit. According to the evidence of some passages the flesh of the horse seems to have been eaten (R.V, I. 163). The regions about the river Sindhu and Sarasvatī were famous for horses. In the innumerable Dānastutis we find the horse as an object of gift (R. V, VIII. 46). Horses were often given

to priests as sacrificial fee especially in connection with the worship of Sūrya.

The Ass, Mule And Donkey: In addition to the horse, the ass, the mule and the donkey were also used for drawing chariots and other purposes. As to mules their hardiness is praised and their sterility dwelt upon and explained in some of the Brāhamaṇas. Mules and donkeys were used for carrying load and drawing carriages. The story of the race won by the Aśvins with a carriage drawn by donkeys is found in the Aitareya Brāhamaṇa (see Aitareya Br. IV. 9.).

The Camel: Camels were largely used for carrying loads. Probably these animals were of great service in the sterile regions without water near the desert. In the Rg.veda we find mention of gifts of camels (see R. V, VIII. 5. also R. V, VIII. 46). In the Atharva Veda we find them drawing carts (A. V, XX. 137. 2).

Sheep and Goat: (Avi & Aja) The usefulness of the sheep and the goat is repeatedly mentioned in the *Rigveda* and the later Samhitās. In the first named book the god Puṣan is represented as weaving woolen cloth, and is said to wear a garment made from the wool of sheep (R. V, X. 26). Large herds of sheep and goat are mentioned in many places of the *Rigveda* and the other Samhitās. The flesh of these was largely used as food, while the wool was used for clothing. In the time of the *Rigveda* the wool of Gāndhāra was highly prized.

The Elephant (Vāraṇa, Hastī): Elephants are mentioned in the *Rigveda* and the Atharva Veda, in addition to the later works. In the *Rigveda* we find mention of kings riding on elephants. The *Rigveda* also seems to refer to elephants probably used in war. (R. V, VIII. 33. 8).

The Swine (Sūkara): As to the swine we have very little information. In the Śatap. Br. (V. 4. 2. 19) we have the story of the origin of the boar, in which the fat of the boar is referred to. The same speaks of pig-skin shoes.

Hunting and Fishing

Hunting and fishing remained the occupation of a large section of the people especially the aborigines. Some were hunters by profession and lived by it, used bows or arrows, or the snares. Fishing became the main occupation of a section of the population who belonged to the aboriginal classes. In the Yajurveda we find the words Dass Kaivarta or Kevarta and Dhaivara, all denoting fishermen. In the *Rigveda* we have very little reference to fishing. Of fish the Śakula is mentioned. Crabs (Kakkata) are also mentioned.

Of fish-eating we know very little from the Vedaîs although the land inhabited by the Aryans contained mighty rivers abounding in fish. This may be due to aversion to fish eating, but there is no direct evidence pointing to it. In the later Smṛti works, fish was not only prescribed as food but was offered to the manes and the guest. Of aquatic animals other than fish, the tortoise (Kurma or Kaśyapa) Is spoken of in glaring language in the Śatapatha Br. (VII. 5. 1. 5.) which describes it as a sacred animal from which all (creation sprang up. it is doubtful whether the flesh of these used to be taken. References to Pearl-fishery exist in the *Rigveda* and Atharva veda, and the word Kṛśana occurs (Vedic Index 1.181).

Growth of Arts and Crafts

Of the arts and crafts of the Vedic period, some seem to have arisen undoubtedly before the Aryans came and settled down in the Punjub. Many nations of antiquity had made considerable advance in them, as would appear from the similarity existing between some words of the Sanskrit language and corresponding words of various Indo-European languages, denoting the same craft, industry or occupation. Thus the similarity existing between Sanskrit Takṣan and Zend Tashan and Greek Tektan all meaning a carpenter, proves the existence and development of the carpenter's art among the Indo-Europeans before the separation. Again, when we come to discuss the origin of weaving, we find that the Sanskrit words Tan, and Tanti (string), Zend Tan, Greek Teina, Latin Tendo, all meaning stretching, are closely allied to each other. For plaiting we have the

Sanskrit root Pre, akin to, Greek pleko, and Latin Plico all similar in sound and in sense. Similarly, for weaving we have the Sanskrit root, Ve, Latin Vieo, Teutonic Weban, all akin to each other in sound and in meaning.

The above philological evidence is really interesting and from this comparison of words denoting carpentry, stretching and weaving, we may safely draw the conclusion that a common knowledge of some of these crafts (e.g. those of the carpenter, boat-builder, and the weaver) existed among a large number of communities who in antiquity were closely related to each other either by blood or by speech. Max Muller discussed this subject in his "Biographies of words" and after him Schrader took up the study of the same subject. According to the latter, the primitive Indo-Europeans knew in addition to certain crafts, the rudiments of platting and weaving and this art had advanced a little.

From a study of the *Rigveda* and the other Samhitās it would appear that by the time of *Rigveda* society had long passed that primitive stage in which families or individuals supplied their own necessaries by their own skill and labour. Industry had come into being, and, moreover, the ruralised industry was on its way to a further development. There was a decided tendency towards division of labour and the growth of various sub-crafts. In the early Vedic period, industry does not appear to have been servile and some of the early craftsmen like the Rathakāra and the Takṣan enjoyed a considerable social status. They stood in close relation to the king of whom they were regarded as Sti or clients (Supra pp. 95-96). The main impetus towards the development of industry came from the ever-increasing requirements of the agricultural and military needs of the community, settled in the midst of a hostile population. With the growth of the crafts the organisation of the craftsmen into guilds came into existence.

For a time, however, with the elevation of the princely class and of the priests, the agricultural and industrial population lost the social status they once enjoyed. The Vaiśyas, the mass of the industrial population came to be regarded as being tributary to another (Anyasya

valikṛt), and oppressed at will (Ait. Br. VII. 29. 3), while the Śudras were regarded as the servants of others, whose lives could be taken with impunity. Towards the end of the Vedic period, however, there came a change. The Vaiśya and the Śūdra communities, looked down upon by the higher castes, were able to improve their position by organising into guilds, which gave them protection against oppression and helped them in making their economic condition better. At present we know very little about the guilds which existed in the *Rigvedic* period, but some of the words denoting these bodies in later literature, occur even in the *Rigveda* and prove their existence in that very early period. The question of guild-organisation will receive attention in its proper place. Of the more important industries of the Vedic period we may mention the following:

1. Working in wood—carpentery, including boat and chariot-building and making of household implements and furniture.
2. Weaving.
3. Working in metals.
4. Pottery.
5. Tanning of hides.

Working in Wood: In the *Rigveda* we have mention of the carpenter e.g. the Taksān and Taṣṭṛ see (R. V., IX. 112. l). In addition to the ordinary carpenter who was employed in making vessels of wood and household furniture, we have the Rathakāra who made Rathas (chariots) and wagons. The Rathakāra enjoyed a high social postition, and is mentioned in many places in the Vedic literature. His importance was due to his work *e.g.* the chariot, which was important in connection with the warfare of those days. References to boats and ships pre-suppose the existence of boat-builders. From the *Rigvedic* days downwards, we hare mention of Plavas and N vas of Navus. Later on in the Śatapatha Br. we find mention of the two rudders of a ship or Nau-maṇda (Sat Br. II. 3. 3. 15.)

Weavings: The art of weaving also originated with the Indo-Europeans Inspite of the knowledge of weaving the hide of slain animals and the bark of trees often supplied garments to the poorer or backward sections of the Vedic community (R.V, X. 136.2). Hermits and Brahmacāris continued to use these till the time of many of the later Smṛti works. As a rule however, garments made of wool or of other materials were largely used by all classes of people in the Vedic period. The earliest references to weaving are found in the *Rigveda*. In that book as also in the Atharva Veda we have repeated occurrence of that simile in which night and dawn are compared to two young women engaged in wearing (R. V, II. 38. & A. V, X. 7. 42). In the fourth Maṇdala of the *Rigveda* we have a reference to a cloth-stealing thief (Vastramathim tāyum). In the sixth Ma ala we have a distinct reference to weaving and the occurrence of the words Tantum, Otum, and Vayanti (R.V., VI. 9. 2.). The roots Ve and Tan meaning weaving and stretching, occur in many places of the Vedic literature. More over, the *Rigveda* contains the word Vāya meaning a weaver (X. 26. 6) and the word Tasan meaning a weaver's shuttle (X. 130. 2). In the Yajur-veda we find the word Veman meaning a loom (see Vāj. Sam. XIX 83; also Maitrā. Sam. III. II. 9; Kāt. Sam. XXXXIII. 3; Taitt. Br. II. 1, 4, 2). The Vāja-saneyi Samhiṭā mentions the use of Mayūkhas or wooden pegs to stretch the web on, and the use of leaden weights (Vāj. Sam. XIX. 80). In addition to these we have a large number of words showing the extensive use of woven garments and the names of parts of the Vedic Aryan's dress. The words Vasana (R. V, I. 95. 7) Vastra (R. V, I. 26. 1; I. 1.134. 4; II. 29; III. 39.2;): Vāsas (R. V, I. 34. 1; I. 115. 4; I. 162, 16; VIII. 3. 24; X. 26. 6; & X. 102. 2) occur in the Samhitās. In addition to these we have the words Atka (mantle), Usṇiṣa (Turban) Nīvī, Paridhāna, Sāmula, Sāmulya (woolen garments), and Pesas (embroidered garments (R. V, 11. 3, 6; IV. 36. 7; VII. 34. II; also Vāj Sam, XIX. 82. & 89 also XX 40). As to the material used in the weaving of cloth, wool was probably used first (Urnā). In the *Rigveda* the god Puṣan is described as engaged in weaving woolen cloth and wearing a garment

of wool. In the *Rigvedic* period the wool of Gāndhāra (R. V. I. 126. 6), of the Paruṣṇī country and of the Indus region (R. V, X. 75. 8) was highly prized. Úrnā Sūtra is mentioned in later Samhitās (Vāj. Sam. XIX, Maitrā Sam III. 11.9; Kat. Sam. XXXVIII. 3).

Linen: Next to wool we meet with the use of linen garments. The word Kṣauma meaning a linen garment occurs in the Maitrāyaṇi Samhitā and in some of the Sutras. The word Tārpya occurs in the Atharva Veda (A. V, XVIII. 4.31) and in other Samhitās (Taitt. Saw. II. 4. 11.6; Śaṭap. Br V. 3. 5. 20; Kayāyana. Śr. Sūtra XV. V. 7.). As to the meaning of T rpya there is a difference of opinion. According to Indiạn commentaries T rpya means linen but according to Goldstucker it means a silken garment. According to Max Muller Skt., Kṣauma and Umā mean flax or linen.

Śana: The word occurs in the Atharva Veda and in some later works. As to its use details are lacking. The Atharva Vedic passage simply describes it as growing in the forest (A. V, II.45).

Cotton: As to the use of cotton in the Vedic period we have no information. As far as our knowledge goes cotton has been indigenous to India, and it was extensively used in India at least before the 7th century BC. However at present we have nothing to prove its use in the Vedic period. The word Kṣarpāsa does not occur in Vẹdic literature proper. Its earliest mention is found in the Aśvalayana Śrauta Sūtra which was composed not later than the VIIIth cen. BC. From this we may conclude that the use of cotton was known towards the close of the Vedic period, when the Aryans came to occupy the cotton-growing districts.

In the early Vedic period weaving was most probably entrusted to women. This would appear from the Vedic simile cited above in which night and dawn are compared to two women engaged in weaving. The word Sin (R. V, X. 719) probably means a female weaver (R. V. I. 92. 3; A. V, X. 7. 42 and XIV. 2. 51.). The Vājasaneyi Sam. contains the word Peśaskārī meaning a woman engaged in making embroidered garments, (in the list of human victims in the Puruṣamedha; Vāj. Sam. XXX. 9). The Pañca V. Br. (1.8.9)

contains the word Vāyitrī meaning a female weaver, Women were also engaged in washing and dyeing cloths as would appear from the words *Vāsahalūlī* and Rajayitrī.

Tanning: Tanning of hides was known in the *Rigveda* where we find mention of the Carmamna meaning a tanner. The *Rigveda* (VI.48,) refers to bags and pota of hide or skin in which milk, curd and wine were kept. Chariots were covered with cow hide. No further detaits as to the process of tanning have come down to us, but the Śatapatha Br. seems to refer to stretching of hides with pegs.

Pottery: The potter is mentioned in the Vedic literature where we have the word Kulāla (Vāj. Sam. XVI 27; Maitrā. Sam 1. 8. 3; also Vāj. Sam. XXX. 7) meaning a potter. The word Mṛtpaca too occurs in the same sense.

Wine Distilling: Wine-distilling was an important industry in the Vedic period. Of the intoxicating drinks we hear of the Soma, the sacred sacrificial drink obtained from the Soma plant which probably grew in the mountains, and the Sura which was a strong drink, used, in certain sacrifices. As to Sūrā, in Taitt. Brāhmāṇa we have (Taitt. Br 11.6) an account of its preparation. The ingredients used were powdered rice, barley and sour milk. Kilāla was probably a variety of Surā (a kind of rum) while Parisrut was a drink made from flowers. The Surākāra meaning a wine-distiller occurs in Vedic literature. As to the introduction of the wine we have no informa from the Vedic literature. By the time of, Pāṇini, however, Kapiśā became famous for its grapes and the wine prepared from it.

Knowledge of and Working in Metals

From the evidence of the Vedic literature we know that the Vedic Aryans were acquainted with the use of the following metals:

1. Gold—Hiraṇya, Harita, Suvarṇa, Jātarūpa, Candra etc.
2. Silver—Rajata-hiraṇya or Rajata.
3. A Third metal—(iron) copper or bronze ?) Ayas or Lohāyasa.

4. Copper—Lohā
5. Iron or steel—Ayas—Śyāma, Kārṣṇāyasa.
6. Lead—Sīśā.
7. Tin—Trapu.

Of these the *Rigveda* mentions gold and the metal most used at that time—Ayas As to Ay as we do not at present know whether it was iron or copper or bronze. The Atharva Veda mentions in addition to gold and silver (Raja'a A. V, V. 28) Lohāyasa, or Lohitāyasa, Śyāma (A.V,.IX 5.4.) occurring along with As meaning sword. The word Ayas too occurs in the same passage), Ayas (A. V, V. 28), Trapu (Tin A. V, XI 3. 17) and Sīsa lead, A. V, XII 2. 1). The Vājasaneyī Sam (Vāj. Sam. XVII 2. 1) gives us a list of the metals than known *e.g.* gold, (Hiraṇya) Ayas, Śyāma, (iron), Loha (copper), lead (sisa), and Trapu (tin). The real meaning of Ayas will be discussed separately.

Gold: Gold according to Schrader was known to the Indo-Iranians as is proved by the similarity between Sanskrit. Hiraṇya and Zend Zaranya. It is repeatedly mentioned in the *Rigveda*, Atharva Veda and other samhitās, where golden ornaments, golden necklaces, armlets, and ear-rings, worn by princes, wealthy men, bridegrooms, and women of high society are spoken of. In times of marriage, ornaments of gold were given to the bride by her relatives. In connection with ceremonies and sacrifices gold was also largely used. In the Taitt. Sam. (V. 7. 13.) golden discs were used, and a golden image of man was used in Aśva-medha since gold was regarded as immortality. In the *Rigveda*. (V. 19. 3) we find the word Niṣkagiīva (wearing golden necklace). According to the same book, golden ornaments were used by bride-grooms and formed part of the gift to brides by their fathers or brothers; golden armour (Piśangam and Drāpī—see R.V.) were used by princes. In the innumerable Oānastutis the *Rigveda*, gifts of gold pieces, ornaments (Niṣka, or lumps of gold (Hiraṇyapiṇdān) are mentioned. Apart from this use of gold, gold coins came into circulation. The question of the use of gold as medium of exchange will be discussed later on.

Silver (Rajata): According to the evidence of the *Rigveda*, silver was most probably not known to the *Rigveda* Aryans. In the Atharva Veda, Rajata occurs and it must be taken to mean silver. The Atharva Veda (V. 2. 28) describes an amulet of three metals *e.g.* of gold, silver, (Rajata) and iron and Silver is said to grant vigour to the wearer. The word Rajata again occurs in the Atharva Veda. (XI 11. 4. 51). In the Taittirīva Samhitā we have the story of the origin of sill and there the word Rajata-hiraṇyam is used. According to the same story the god Agni carried off the booty gained by the devas from the Asuras. Pursued by the other gods he cried and his tears were turned into silver. In the later Samhitās and Brhāmaṇas, we find repeated mentions of ornaments and plates of silver (Śatap. Br. XII. 8. 3. 11.; Taitt. Sam II. 2. 9. 7; III. 9. 6. 5). The Pañcavimsa Br. describes the Vrātyas as wearing silver necklaces (XVII. 1. 14).

Ayas or the Third Metal: As to the real meaing Ayas, a metal largely used in the *Rigvedic* period, there is a difference of opinion amongst scholars. The *Rigveda* as well as all the other Samhitās are full of references to Ayas and articles made of it, but nowhere there is any clear indication to tell us whether the metal was copper, iron, or brass. The evidence of some of the old texts is often misleading. Thus in Śatapatha ·Br. (V. 1.2. 14) Ayas is any metal which is neither gold nor lead. In the Vāj Sam. (XVIII. 13) Ayas is separated from Loha and Śyāmam. Max Mủller was once inclined to believe that Ayas meant iron, but changed this opinion later on. In? learned article in which he discussed the meaning of Ayas he summed up as follows: — "All, therefore, we are justified in stating positively is, that at the time of the *Rigveda* besides silver and gold, a third metal was known and samed Ayas, but whether this name was referred to either copper or iron or to metals in general, there is no evidence to show." In this connection Schrader in his Prehistoric Antiquities says that it probably meant neither iron nor bronze but the pure dark copper which was known to the original Indo-European peoples (compare Sanskrit Ayas, Latin. Aes, Goth. Aiz, Zend Ayarih). He further points out that "It is worthy of note that a series of names

of copper gradually assumes the meaning of iron." Thus Sanskrit Loha originally meant copper but later it was used to denote Iron.

Whatever be the real meaning of Ayas, it was extensively used throughout the Vedic period. As to agricultural and household implements we find mention of various articles made of Ayas *e.g.* Aya-hata (R. V, IX.; 1. 2; IX. 80. 2) Ayasmaya (R. V, V. 30. 15). In connection with chariots we hear of poles of Ayas (Ayasthūṇa—V. 62. 8.) and in connection with warfare we find mention of warriors meaning mailed armour (R. V, VI. 27. 6.) or bearing Siprā (Visor—R. V, 113.4; V. 54. 11; VII. 7. 25) Khṛgala or body armour (R. V, I. 25. 3; II. 39. 4) Samtrat, Drāpis (see R. V, IV. 53) all made of this metal. The Rg.veda (V. 53) describes— armours and weapons of metals, (*e.g.* V si, Rukma, Khādi, Rṣṭi). Arrows were tipped with metal points (Ayasāgra) and the God Puṣan was armed with a metal goad. The *Rigveda* also mentions razors.

We have distinct references to the smelting of metals and the business of the smith (see R. V, VI. 3. 4; IV. 2. 17 and IX. 9. 12). The *Rigveda* mentions the smith along with the carpenter, the physician, and other craftsmen. Other Saimhitās, too, mention him. In the Atharva Veda the smith is said to be one of the Mānīṣinah or clever workers. The smith smelted the ore and was called Dhmātṛ. Mention is also made of the bellows.

Loha: Loha, the red metal or copper. It occurs in the Atharva Veda as Loha and Lohita (XI. 3. 17), and also in the list of the metals in the Vāj. Sam. (XVIII. 13). The words Lohāmaya and Lohāyasa occur in the Śatapatha. Br. (V. 4. 12; and also XIII. 2. 2. 8). In the Taitt. Sam. it is distinguished from Śyāma or iron. It is called Loha from its colour. As to its meaning scholars often differ. Roth explained Loha in Lohamaya as made of copper or iron, in connection with the explanation of a passage in the Śatapatha. Br. in which three words Hiraṇmaya, Lohamaya, and Ayas exist side by side. Max Muller thought of translating Loha by copper if there was but a certainty that Ayas meant (made of) iron. Schrader translated Loha by copper and his opinion has already been cited.

Śyāma: Śyāma or the black metal is used in Atharva Veda (IX. 5.4; XI. 3. 7) apparently to meaniron because the word occurs along with Asi meaning sword (see also Taitt Sam. 7. 5. 1.; Kāt. Sam. XVIII, 10 and Vāj Sam. XVIII. 10). The early mention of articles made of Śyāma goes to prove that the Indians learnt the process of extraction of Iron from the ore very early. In subsequent periods the iron and steel manufactures of India were famous throughout the world.

Trapu: or tin is mentioned in Atb. Veda (XII. 3. 18) in the Vāj. Sam. (XVIII. 13) in Taitt. Sam. (IV. 7. 5. 2) Katha. Sam. (XVIII. 10) and Maitrā-Samhitā.

Sisa: Lead—occurs in the Atharva Veda (XII. 2. 1; I. 16. 2. 4) in the list of metals in the Vāj. Samhitā where we also find the statement that grass and other necessaries of sacrifice were obtained in exchange of lead. It is also mentioned in the Śatapatha. Br. (XII. 7. 1. 7) and in the Chāndogya Up (IV. 17. 7).

Golden Ornaments: Of golden ornaments we hear of the Niṣka or necklace made of gold pieces (R. V, II. 33. 10; VIII 47; A. V, V. 14. 3; Chāndo. Up. IV. 21). The Kurira (head-ornament) is mentiond in connection with the bride's ornament R. V. X. 85. 8; A. V. VI, 138. 2), as also Kumba (head ornament VI. 138 3), Karṇaśovana (R. V, I. 122 14, VIII. 78. 3) Rukma, Khādi, anklets, armlets and rings. Princes and rich people bedecked themselves with gold. Gold ornaments were worn by brides, and formed a part of the gift by their fathers or brothers. Princes, especially those who were rich, used armours of gold.

Workers in gold and manufacturers of jewellery *e.g.*, the Hiraṇyakāra and Maṇikāra are mentioned in the list of human victims of Puruṣamedha in the Vājasaneyi Sam. (see Vāj. Sam. XXX. 17 and also the Taitt. Br.).

Labour and Occupations

From the discussion of the arts and crafts we pass on to the study of the occupations of the people. As we have already said,

Rigvedic society was hardly primitive and even the oldest portions of that book show germs of a social division, arising out of the adoption of different occupations by different sections of the community. With the advancement of culture, social life, too, became complex. The ever-increasing wants of society gave rise to different crafts. The requirements of agriculture, of war and of religion gave a stimulus to these craftsmen. Sections of the community began to engage themselves in these occupations. The success of a few Induced a large number to follow the same occupation. The advantages of a division of labour became apparent, and led to a further subdivision among these craftsmen. As yet in the early period there was no stigma attached to the following of these professions, and consequently a part of the Vaiśya community took up the business of the smith, the carpenter, the weaver, or the chariot-builder. Some of these stood in a special relation to the kings and chiefs of those days and were known as the "Upasti" (see R. V, X. 97.23 and A. V, III. 5-6 7).

Apart from these skilled workmen, there were the landless poor, who made service as the chief means of their livelihood. The servile classes became workmen or engaged in lower crafts like pottery or basket-making, or took to hunting or fishing. The existence of some of these occupations is proved by the evidence of the *Rigveda* which speaks of the varieties of professions in which men engage and mentions the physicians, the wright, the barber the smelter, the carpenter, the cow-herd in addition to many-others. In R. V, IX. 112 a bard describes the various professions very beautifully. Thus he says—The Brāhmaṇa seeks the worshipper.

The wright seeks the crackled—

The leech the maimed.

The smith with enkindled flames.

Seeks him who hath stores of gold.

In the *Rigveda* other occupations are mentioned. Thus the barber is mentioned; the merchant is spoken of in more than one place (see R. V, IX. 112). From the Atharva Veda we have more information

on this point and the Vājsaneyi Samhitā gives us a list of various occupations in connection with the victims of the Puruṣamedha (see Vāj. Sam. XXX.) From all these we can form an idea as to the extent of division of labour at the time of their composition. The following is a list of the principal occupations.

Priestly Occupations: First of all, there were the Priestly class, who earned their livelihood by officiating in sacrifices, by teaching the sacred lore, or in other ways ministering to the spiritual needs of the community. As has already been shown, various grades of priests had arisen and these included the following *e.g. Rtvij* (priest officiating in sacrifices), *Chhandoga* (reciter of verses), *Somin, Udgltha, Gāyatrin* (priest or reciter), t*he Adhvaryu* (a yajus priest), the Brahma priest, *Gaṇaka* (mathematician), *Nakṣatrādārśa* (astrologer), and *Bhiṣak* (physician). Even during the days of the *Rigveda* the practice of medicine had become a profession. The word Bhiṣak occurs in many places of the *Rigveda*. The healing art was highly lauded, and the Aśvins, the divine physicians were repeatedly invoked. In addition, Varuṇa and Rudra were also called physicians. To the physician's skill was attributed the healing of the blind and the lame; the story of the restoration of Cyavana's youth is mentioned in many places. As yet there was no stigma attached to the following of this profession, though the germs of the later dislike, is found in the Yajurveda (Taitt. Sam. VI. 4. 9. 3. etc.).

Agricultural Occupations: Agriculture and allied operations drew a larger number of people. Besides the high caste husbandmen we hear, of various agricultural labourers. We have the names of the following:

Kinasa, Krishīvala } ploughman.

Gopa and Gopāla— herdsman.

Avipāia and Ajapāla—Goatherd

Paśupa—herdsman.

Dhānyakṛit—one employed in husking.

Upalaprakṣinī— woman employed in making groats.

Vāpa—sower of grains.

Industrial: Of those engaged in the various arts, the following are worthy of being mentioned *e.g.*

Karmāra—smith.

Dhmātṛ—smelter.

Kulāla and Kaulāla—potter.

Mṛitpaca—potter.

Iṣukāra—one who makes arrows.

Dhanuṣkāra, Jyākāra—bow-maker.

The separation of the arrow-maker from the bow-maker shows the extent of the division of labour.

Takṣana— carpenter—who produced all sorts of work— both rough and fine. In the Vedic age they do not seem to have been members of a lower caste.

Prakaritṛ—stone-carver.

Peśitṛ— carver.

Vidalakārī—basket-maker.

Maṇikāra, Hiraṇyakāra—worker in gold and jewellery.— The existence of these skilled workmen shows the wealth of the society.

Rajayitṛ—dyer.

Vāya—weaver.

Vayitrī—a female weaver.

Peśāskārī—a female embroiderer. The fine embroidered cloths produced by them was used by the rich, who are described as wearing mantles adorned with gold—(R. V, V. 55. 6). The weaving industry was then mostly in the hands of women.

Rathākāra—chariot- builder. The importance of these craftsmen was due to the use of the chariot in war. They are mentioned in the *Rigveda*. By the time of the Atharva and Yajur-vedas they formed a

separate caste and stood in special relation to the king and occupied a considerable social position.

Rajjukgra—rope-maker.

Surākara—wine-distillers, who seem to have formed a separate caste in a society which used various kinds of intoxicating liquors in spite of the fact that drinking was looked down upon as an evil (A. V, VI. 70. 1.)

Non-Industrial and Menial Occupations

In addition to the above we find mention of the barber (Napita, Vaptṛ), washerman (Malaga, Vāsahpalpūlĭ), gatherer of wood (Dārvāhāra), fisherman (Dāsa, Dhĭvara, Dhaivara, Vainda, Mainala, Kaivarta, kevarta), herdsman (Gopa, Gopāla), huntsman (Govikartana), drum-beater (Dundubhyāghāta), cook (Paktṛ, Pācaka, Śrapayitṛ), charioteer (Sārathi, Rathin, Rathagṛtsa, Dhūrṣad, Yantṛ), elephant-keeper (Hastipa), servant (Anukṣattṛ, Kṣattṛ), doorkeeper (Dvārapa, Gṛhapa), guard or servant (Pāyu, Puruṣa,) Preṣya, (Pratyenas), menial, or messenger (pālāgala), waiter, (Parivestṛ), waiter (Paricara), rower (Anithin), boatman (Nāvāja), groom (Aśvapa), bath-attendant (Upaṣektṛ), shampooer (Upamanthitṛ). In addition to these there were others who earned their living by amusing the public or ministering to the luxury of the rich. The Puruṣamedha list mentions actors (Śailuṣa), dressmaker (Peśaskārĭ), exciters of love (Smarakāri), lute player (Vĭṇāvāda) Tūṇabadhma, Śankhadhma. Similarly, we hear of Vāmśanartaka (acrobat) Vināgathin (lute-player) Talaba, Pānighna (Hand-clapper) Sabhāvin (keeper of gambling houses). The evidence of the *Rigveda* and other Samhitās proves the existence of courtesans (R. V, X. 27. 12).

We know further that with the growth of the state there arose a class who lived by accepting service under the king. Prominent amongst these officials we have the Ugra (police officers) Jĭvagṛbh (police officer) atapati, and later on the Am tyas and Sacivas (included in the list of the Ratnin). The evidence of certain words show the existence of merchants and bankers. The words Vaṇij and Vāṇija occur ϵven in the *Rigveda*. The words Śreṣthĭ, meaning a

rich man or a banker, and Kusidin (a usurer) occur in the Aitareya and other Bhāhmaṇas.

Labour

Labour: A study of the economic condition of the Vedic period shows that as yet labour was not wholly servile: much of the agricultural labour was in the hands of the freemen householders along with their sons and kinsmen. Gradually, however, there arose various labouring classes recruited from the landless poor or conquered enemies. Slaves existed and in the Samhitās we have repeated mention of slaves (Dāsa). In the *Rigveda* we have prayers for the acquisition of slaves and we hear of gifts of slaves (R. V., III. 46. 32; VIII. 56. 3). We do not, however, know the extent to which slave labour was employed or anything as regards their status and condition.

Female Labour: Husking, winnowing, grinding of grains etc. were mostly entrusted to women. Women were employed in certain industries and female labourers working for wages probably existed. Thus in Vedic literature we meet with the words Upalaprakṣiṇī (woman employed in grinding corn), Vayitri, Peśaskārī (female weaver) Rajayitrī and Vasahpalpūlī (woman employed in dyeing and washing cloths). In rich families Dāsis (slave girls or maid-servants) were employed.

Existence of Guilds

We come next to discuss the existence of guilds in the Vedic period. In the *Rigveda* (V. 53. 11) the army of the Maruts is said to be divided into Gaṇas and Vrātas, the two words always meaning guilds or corporate-unions in later Sanskrit. Again, in the same book (X. 34), in connection with dice-play, we hear of leaders of Gaṇas and Vrātas. In the Yajur Veda (Vāj. Sam. XXIII. 19. 1) we have the word Gaṇa, besides Gaṇapati, which means the head of a Gaṇa. The evidence of these words which are not clearly and intelligently explained by the Indian commentators, goes to prove the existence of these organisations in the early part of the Vedic

period. Coming to the Bṛhadāraṇyaka Up. we find the gods of the Vaiśya class described as divided Into Gaṇas (Etāni devājātāni gaṇaśah ākhyāyante—gaṇaśahgaṇam-gaṇam—gaṇaprāyā hi Viśah). In addition we have the word Śreṣhṭhī meaning a man of consequence or more probably the headman of a guild, occurring in the Brāhmaṇas (Ait. Br. III 30. 3.; Kaus. Br. XXVIII. 6). All these go to prove the existence of the guilds in the Vedic period. As yet, information about them is very scanty and we know nothing about their nature and organisation.

Trade and Commerce

The early part of the Vedic period or that preceding it, was an age of economic self-sufficiency and consequently there was little scope for an exchange of commodities. All the rural centres were self-supporting. Every house-holder produced the necessaries of life—his farm producing his food-grains and other necessaries, the industry of the women of his household supplied him with his clothing, while the craftsmen attached to the village did the rest. Consequently, there was no inter-dependence between two neighbouring local areas. The surplus product was kept for future consumption. This state of full economic independence did not however last long. Society became complex. A large section of the community gave up the simple agricultural life; the primitive arts and crafts drew away a large number; owing to these and various other causes, there arose a scope for interchange of commodities between different local areas. Barter of goods, and later on, regular parchase and sale came to be introduced. The excess of production in certain localities induced energetic men to carry them to other places where these could be disposed of on profit. In this way there arose commercial enterprise, and we find mention of merchants even in the *Rigveda* as well as the use of the verb Krī (-meaning purchase; R. V. IV. 24. 10).

But beyond this, the *Rigvedic* evidence does not tell us anything. We know nothing us to the existence of markets, though one passage suggests the existence of haggling (IV. 24. 9). The same speaks of

sellers, who demanded, more price than that originally asked for (*e.g.*, something more than that paid at the time of sale). The buyer on the other hand is represented, as insisting on the original price demanded and paid for, and is made to insist on the sanctity of contracts. (R.V, IV. 24.9). As to traders we have in the *Rigveda* the words Vaṇij and Vāṇija (R. V, I. 112. 11 and R. V, 45. 6) denoting a merchant. In the Vāj. Sam. in connection with the Pūruṣamedha the Vaṇij or merchant is mentioned as a victim (sea Vāj Sam. XXX. 17 and Taitt. Br. III. 4.14.1). Excepting their existence we know nothing of the Vedic merchants. The Vedic passages where the word Vaṇij occurs, tell us nothing about them, *i.e.* about the way in which they carried on business, their difficulties or the profits they made.

When however we come to the Atharva Veda, we have some information about early merchants and the commodities they carried for exchange. That book (V. 7. 6) mentions garments (Dūrśa) coverlets (Pavaita), and goatskin, (Ajina) as articles of trade. At to merchants the information supplied is really interesting, for an Atharva Vedic hymn (*e.g.*, III. 15) shows that the early merchant was an adventurous wanderer, who moving from place to place, risked not only his goods, but his life for the sake of gain. He had to travel from one part of the country to another. His life was often jeopardised owing to the depredations of wild beasts on the way. and owing to the presence of robbers, who scrupled not to take the life of such people. Consequently, before starting, the merchant prayed to Indra "the merchant par excellence" (A. V. III. 15.1), so that he might be his "guide and leader, chasing ill-will, wild beasts and highway robbers." After this prayer for security he is described as turning to Agni and praying for "a hundred treasures" and craving pardon for "this stubbornness." He is then made to speak of "the distant pathway which his feet have trodden," and to call upon the gods to be propitious to him in order that there may be success in 'sale (Vikraya), barter (Prapaṇa), and exchange of merchandise' (Pratipaṇa),—that his invested capital (Dhanam) may grow more for him and his ventures may be prosperous? The Vedic merchant,

thus, seems to have been an adventurer, in search of gain. He sold, bartered and exchanged his goods for those of another locality. He appears to have been the fore-runner of the Svārtha-vāhas and caravan leaders of the early Buddhist literature and of the Jātakas. The above hymn is used in the Kauśika sūtra (K. S, L. 13 for success in business.

The Panis: In addition to these indigenous merchants of the Vaiśya caste, we have another class of merchants designated by the word Paṇi in Vedic literature (see R. V, I. 33. 3; X, 60. 6; A V, 11. 7; Vāj. Sam. XXXV. 1. According to the evidence of Vedic literature, the Paṇis were a rich and enterprising merchant class solely devoted to the cause of gain, either through trade or through usury. They have been designated Bekanāṭas or userers and *Rigvedic* evidence shows that with the exception of a few of them like Bṛbu, they were the objects of popular dislike. According to Roth and Zimmer they were a niggardly merchant class who neither worshipped the gods nor revered the priests. Ludwig thought, that they belonged to the aboriginal trading class, while according to Hillebrandt they were the Parnians of Strabo. The identification and association of the Pani with Bekanāṭa (R. V, VIII. 16. 10 and Nirukta VI. 26) a word of foreign origin (Babylonian or aboriginal ?) is noted by Macdonell and Keith in their Vedic Indix. (I. 472-3). The growth of trade facilitated the growth of standards and measures of exchange. In course of time a metallic currency grew and displaced simple barter, or the use of the cow as a standard of value. The machineries for measuring quantities came into existence.

Balance Weights and Measures: The balance or the Tulā is mentioned in the Vaj. Samhitā (XXX. 17) also in the Śatapatha Brāhamaṇa. In connection with the estimation of a man's good and evil deeds, or in connection with the balance ordeal we find it mentioned. Wooden vessels of definite size were used in measuring grains. Standards of weight were also invented. Thus, the Kṛṣṇala of (berry of abrus precatorisus) and Māṣa and some other grains were used as standards of weight in measuring precious metals. (Vedic Index. I. P. 185). We have very little information about the

inter-change of commodities of various localities. But any bow there are indications that towards the close of the Vedic period goods from the extreme west were sent to the east. The wool of Gāndhāra and Paruṣṇī were prized all throughout the land. Similarly the Atharva Veda which describes Guggula, as a product of the Indus or 'coming from the sea' points to the growth of a centre of maritime trade in the region of Sindh. The Śatapatha Brāhmaṇa describes (Sat. Br. XI. I. 5. 12) horses as Saindhavas or coming from the Indus region (Br. Ar. Up, VI. 2. 13). The Bṛhadāranyaka Upaniṣad (11.4. 12) also describes salt as coming from the Iadus .

Maritime Trade

It is difficult to answer the question as to whether the sea was known to the Vedic Aryans or whether these people had any commercial intercourse with the other maritime nations of antiquity. We are dependent more or less on literary and circumstantial evidence and even then, the material at our disposal is very scanty. As we have said elsewhere the word Samudra, which in later texts always means the sea, occurs in the *Rigveda* which also contains some references to voyages to the Samudra. Thus *Rigveda* I. 25. 7., referring to the Samudra, speaks of Varuṇa's knowledge of the ocean-routes (Samudriyah) along which ships sail. A second passage (1. 56. 2) refers to the Samudra in connection with the activity of merchants. Samudra is again mentioned in R. V, VII. 88. 3 and 4 which describes the voyage of Vaśiṣṭha and Varuṇa (in this passage the word Nava occurs). In addition to this we have in the *Rigveda* (R. V, 1. 116. 3 to 5) the story of Bhujyu, son of Tugra, who was sent out by his father to conquer certain enemies. While at sea his vessels were disabled and he with his followers were on the point of being drowned. But he prayed to the Aśvins who, heard his prayers and sent him home in a vessel of one hundred oars (Śatāritram Dāvam).

As to the meaning of the word Samudra occurring in the passages mentioned above, some scholars are of opinion that Samudra meant not the sea but only the "lower course of the Indus which

after receiving the waters of the Punjab rivers is so wide that a boat in mid stream is invisible from the bank" (see *Macdonell*. Hist. of Sans. Lit. p. 143) In their Vedic Index, Macdonell and Keith have discussed this question and cited the opinions of various scholars *e.g.* those of St. Martin, Lassen, Max Muller, and Zimmer, (Vedic Index II. p. 431-38). They have summed up by saying "that there are references to the sea (R. V, I. 47. 6; VII. 6. 7; (X. 97. 44. etc.), perhaps to pearls and the gains of trade (RV, I. 48. 3; V. 56. 6) and the story of the ship-wrecked Bhujyu seems to allude to marine navigation." (The legend of Dirghatamas may be added.). This view is reasonable and ought to be accepted by all.

As to the existence of trade-relations between India and Babylonia or any other country of the ancient world, we have no definite or positive information, but there are circumstantial evidences which throw light upon the contact of nations in antiquity, and go to prove that there existed some sort of intercourse between India on the one hand, and Assyria Babylonia and some other countries of the ancient world, on the other. The similarity between some of the oldest Vedic Myths (compare the story of Manu and the accounts of the Deluge in Vedic and Babylonian literatures) and those of Sumeria, the recent discovery of the records of the settlement of some branches of the Aryan race in Syria and Sumeria worshiping some of the oldest gods of the Vedic pantheon (see the accounts of the Mitanni and of the Kassites in Hall's Ancient History of the Near East pp. 201-230), the recent discovery of some clay-seals bearing cuneiform inscriptions found in Southern India, the discovery of the presence of Indigo in the clothes of some of the Egyptian mummies, the importation of Sonter-incense (Candana ?) by the Punt (Puanit) expedition in the reign of the Egyptian Queen Hat-sep-situ, the discovery by Rassam of Indian cedar in the palace of Nabuchadnezzar, and of Indian teak in the temple of the moon-god at Ur refounded by Nebonidus—all these point to the existence of an intercourse between India and some of the nations of antiquity.' Perhaps this connection existed from pro-historic times when the sturdy navigators of ancient India, whether Aryans or Dravidians,

made voyages to the West or to the Eastern archipelago or even further beyond Mr. Hall in his early History of the Near East, discussing the question of the origin of the early Sumerians expressed the view, that these people were a branch of Dravidians of Southern India, who migrated to that region either by land through Persia or by the sea (see Hall, P. 173-74). We may not accept this view of Mr. Hall but the recent excavations in Mohendjo-Daro throw light on the probable Indo-Sumerian intercourse on the Indus valley and confirm this race-contact of the past. As yet the time is not come when we may form any definite opinion on the subject and we are to wait until the labours of those scholars engaged in the study of the history of the Assyrians, the Babylonians. the Elamites, the Kassites, the Mitannians and the Hittites, have succeeded in placing before us some definite evidence which alone can help us in solving the problem. But this much is almost certain that maritime intercourse existed between Vedic India and the contemporary ancient world.

Exchange—Its Methods and Mediums

In the earliest period of the history of human culture, all exchange "was by barter i.e., the exchange of one article for another. This was the stage of simple barter. Next to it we have generally a second pre-metallic stage, in which the medium of exchange is some article commonly found and being valued for its utility, becomes the measure of value. In the history of various races, we find the existence of such standards. Thus in Homer we find the use of oxen as standards of value. Gardiner the author of the history of "Ancient Greek Coinage" illustrating this point quotes the Homeric lines "Arms worth a hundred kine for arms worth nine." In the laws of Rome, fines were assessed in oxen. The cow was the standard of value in Rome, and thus came the word Pecunia, (originally meaning cattle) to mean money in which sense it is used in later Latin literature. In addition to the cattle-standard we know of the use of cubes of tea in modern Turkestan, of shells in India and China, of yards of cloth in modern Africa, as standards of value. According to Walsh the author of the history of Metallic

Currency, the pastoral nations of Central Asia still use cattle for this purpose. Tacitus tells us that the Frisians used to pay tribute to the Romans in hides of bulls (uri) and when the latter demanded bigger hides this led to a war between the two nations.

The use of these above-mentioned standards of value gave rise to difficulties, owing to the inconveniences caused by them. Thus in the case of the cow, variations in size or quality must give rise to difference in value. Consequently we must expect to find some more specifications as to the age, size, or milk-bearing capacity of the cow. In the Brāhmaṇas we find (Ait. Br. p. 59 Haug'a Trans) that in connection with the buying of Soma, a cow one year old and immaculate is put down as the standard price for Soma. In addition to this, there would be hardly any provision for the measurement of fractional parts i.e., half the value of the cow or a quarter of the same. The difficulty that arose between the Romars and the Frisians has already been referred to.

To solve these difficulties and to have a more convenient and portable standard, the use of the precious metals was introduced. In the earlier stages of the use of precious metals we have bars, ingots or lumps of gold and silver, of certain standard weights used as money. These had peculiar shapes and marks in different countries. Thus according to Walsh, (p 7), in Greece the oldest coins were stamped with the figures of animals. The same was the case in Egypt, where we find figures of the cow or of other animals in gold or silver used as standards of value. In this stage weight and fineness were always taken into consideration. After this stage we have the issue of private coinage and that came to be succeeded by the use of coins issued and regulated by the state.

From the evidence of the Vedic literature we find the existence of these three stages. There is not only simple barter proved by the evidence of the words—Pratipaṇa or Prapana, meaning commodities received in barter or exchange (A V. III 15. and XII. 15. 4), but the use of the cow-standard in addition to that of gold and silver money. As to the use of this cattle-standard, Macdonell and Keith cite an instance from the *Rigveda* in which an image of Indra is

obtained by giving ten cows. According to them, this proves the existence of simple barter. In reality, this shows the growth of an idea of a standard of value and the use of cows for this purpose. According to the Brāhmaṇas, as we have said already, Soma was purchased with a cow one year old and immaculate. Besides the use of the cow there was the use of gold and probably of silver money. The use of metallic currency has already been mentioned and we pass on to the history of its use and gradual development.

Us of Gold as Medium of Exchange

The question of the use of gold pieces as currency (or medium of exchange) in the Vedic age, is one which has given rise to a controversy which is far from being ended. But the topic is an important one and requires a careful consideration. Before we enter into a discussion of the views of different scholars we summarise the evidence here: —In the *Rigveda* we have repeated mentions of the word Niṣka, a word which in later Sanskrit means a gold coin; the word Mana (supposed by some to be akin to the Akkadian Mina) also occurs in the same book (R. V, VIII. 78. 2). Both the words are of doubtful etemology. The exact meaning of Niṣka is hardly clear and it is used in more senses than one. Of the prominent passages which contain this word Niṣka we quote a few here.

1. In R. V, I. 126. 2, a sage Kakṣīvn praises his patron Bhāvayavya of the Sindhu country, for the gift of "one hundred kine in addition to one hundred Niṣkas as a reward for his services." (Śatam ragño nādhamānasya niṣkācchatam aśvān prayatān sadya ādam śatam Kakṣīvān asurasya gonām divi śravo'jaramā tatāna.)
2. In II. 33, 10 of the *Rigveda*, the god Rudra is described by Gṛtsamada as wearing a neck-ornament of Niṣkas, which are described as Visvarūpa (*Arhannivarsi sāyak ni dhanvarhan niṣkam yajatam viśvarūpam*).
3. Again in R. V, VIII. 47. 15, the goddess Uṣas is invoked to take away the evils of bad dreams from those who wear 'Niṣkias' (*Niskam vādha kṛṇavate srajam* etc.)

4. In R. V, V. 19. 3, in connection with a hymn to Agni we are told of sacrifices wearing Niṣkas. (*Niṣkagrivo bṛhaduktha.....vājayuh*) Here the word Niṣka-grīva has been explained by Sāyana as *Niṣkena Suvarṇena alamkṛitā grivā.*

In many passages of the Atharva Veda, the word Niṣka is used. (A. V, V. 14. 3; V. 17.14). There too in one place (XX. 131. 8.) we bear of a gift of one hundred Niṣkas (Śatam niṣk hira yayā) of gold. Later on references to the Niṣkas are many in the Brāhmaṇas and the Upaniṣads. It is needless to quote all these passages. Some only may be cited. Thus the Aitareya Brāhmaṇa contains a reference (VIII. 22. Niṣka-kaṇṭha) to a rman with a Niṣka-garland. Again in the Pañcavimśā Brāhmaṇa, a Vratya is described as wearing a silver Niṣka. So much for the word Niṣka. Apart from Niṣka the word Manā, appears in one passage of the *Rigveda* (VIII. 78. 2.) where a priest Kaṇva enumerates the gift of one hundred kine, along with some gold Manā.

Besides these Niṣka and Manā, we find mention of lumps of gold (Hiraṇyapiṇda) which are given away to priests or to other people. To quote one such passage, we find in *Rigveda* VI. 47-23, the priest Garga—extolling the gifts of Prastoka and of Divodāsa to him. Among other things enumerated he speaks of "ten purses" and "ten lumps of gold" along with ten horses and some other articles. (Daśāśvān daśa kośān daśa vastrādhibhojanā daśo hiraṇyapiadan Divodāsā dasāniyam—VI. 47. 22. and 23). Here the use of the words Kośa and of Hiranya-piāda is significant. The first apparently signifies purses full of gold or silver, while the second expresses in clear terms, the gift of ten clumps of gold.

We have thus summarised, the evidence of passages in which the words Niṣka and Man occur, in addition to those speaking of gold purses or lumps. At first sight, the evidence seems rather scanty and rather inconclusive, but when we take into account other evidences available, we an bound to come to the conclusion that gold was plentifully used; that the Niṣkas, seem to have been generally valued as neck-ornaments; but in some passages they are

something more—they were nothing but gold and silver-pieces of definite weight and were used as money.

That they were gold-pieces in circulation, is supported by later Indian evidence but in regard to their use in the vedic period there is a difference of opinion amongst scholars. The majority of European scholars are disposed to think, that, in that very early period the use of gold and silver money was not known. Some of them go so far as to deny the existence of gold and silver currency in India prior to the contact of Indians with foreign nations. Thus, Prinsep attributed the rise of coinedmoney in India to the Greek contact and H.H. Wilson too once leaned to the same view (Ariana Antiqua. 404). Kennedy, held the view that the earliest Indian coins were copied—from the Babylonian originals after the Hindus came into contact with these peoples in the seventh or sixth century BC. Vincent Smith entertained practically the same view. The late Professor Max Muller too, himself a Vedic scholar of repute, tried to prove the same and made the ludicrous assertion that the Vedic Niṣka was so called after Kaṇiṣka, (not the Kuśāna Kaniṣka) which was the surname of some ancient pre-Vedic king. With this spirit of an a priori assertion, based not on reason or evidence, we have nothing to do. Almost all of them admit the use of word Niṣka, which in later literature always meant piece of gold of definite weight, but explain its use in the Vedic literature in the sense of nothing but ornaments of gold, *e.g.*, gold-necklaces,

In this connection it must be admitted that the evidence of some of the passages quoted above, point to the use of Niṣkas for the purpose of ornaments and in this sense they have been taken by Sāyana. (Cf. Niṣka-grīvawearing a necklace R. V, V, 19. 3). In other places however, this meaning is hardly applicable, and if we take this sense, it will bring in absurdity. Thus in R V, I. 126. 2, where the singer celebrates the gift of 100 Niṣkas, the meaning necklace, hardly appears to be appropriate. A man cannot require a hundred necklaces to adorn himself. There the word can only mean some standard weight of gold in common use. Macdonell and Keith, who would otherwise have regarded Niṣka to be a gold

ornament worn on the neck, take the evidence of this passage into consideration and sum up in the following way—"As early as the *Rigveda*, traces are seen of the use of Niṣka as a sort of currency. For, a singer celebrates the receipt of a hundred studs and a hundred Niṣkas. He could hardly required the Niṣkas merely for purposes of personal adornment." (Vedic Index, I. 455.)

The truth about Niṣka, thus appears to be, that they were pieces of gold of definite weight and were used as medium of exchange. That they were used as neck-ornaments can be easily explained as being due to the Indian tendency of making necklaces of gold and silver coins. We have inumerabia examples of this in Indian literature, and even now we find such necklaces of gold coins being used among the rich. Poorer people including labourers or even scavengers often make necklaces of coins, which not only serve as ornaments but form their savings.

Thus, the view that the Niṣkas were gold or silver pieces of different weight and value, is confirmed by the evidence cited above. The existence of a money-standard in general acceptance, may be further proved by other evidences. Thus some passages speak of gifts of precious metals without enumerating any standard. These gifts of so many pieces do undoubtedly refer to some definite standard in general acceptance, since, without such a standard in general acceptance, we can hardly expect the mention of mere numbers without any further specification. To quote instances of such gifts without specification of standard, we find the following important passages. Thus *Rigveda* V, 27. 1, speaks of the gift of 10,000 pieces by king Tryaruna (Traivṛṣno Agne daśabbih sahasraih Vsisvānara Tryarunaściketa.—R. V, V. 27. 1 and 2; note the words Daśavis sabasrais and śatā), the son of Tribṛśṇa. The second verse of the same *Rigvedic* hymn speaks of another such gift of a hundred in addition to other things (To me śatā ca vimśatim ca gonām etc.). Again, in R. V, VIII. 6. 46 and 47, the sage Vatsa, praising the munificence of king Tirindira speaks of his bestowing of a hundred and a thousand and other gifts of money and kine (*Śatāmaham Tiṛindire sabasram parsā vā dade rādhāmsi yādvanām. Trīni satānyarvatām sahastā daśa gonam dadus pajr ya s mnā*).

It is needless to enumerate more such passages. Any how all these may be undoubtedly taken to refer to some standard, and this standard seems to have been so common and well known, that the priests did not take the trouble of mentioning it. Wilson in his translation of the *Rigveda* noted this point and made the observation that "it is cot impossible however that pieces of money are intended, for if we trust Arrian, the Hindus had coined money before the days of Alexander". As for ourselves, we need not go to the time of Alexander, for long before that period the Buddhist books mention Niṣkas and Suvarṇas of gold. In the 4th century BC too, according to the evidence be Artha-śāstra the Niṣka was a gold coin issued and regulated by the state.

The Niṣka therefore appears to us as meaning a metallic medium of exchange. This view would appear not only reasonable but will go to explain the meaning of passages where the word occurs. The passages which contain references to the wearing of Niṣkas (as necklaces) may be explained as pointing to the use of Niṣkas for ornamental purpo, a custom still in vogue in modern India. Moreover, when we examine the social and economic condition of the Vedic period, it appears almost impossible that a society highly developed, with abundance of gold and silver, and in which there were various kinds of money-transactions (loans and debts on interest), did not know the use of precious metals for money transactions.

Niṣkas were both of gold and silver. We have no reference to their weight until we come to the later Smṛti works or to the Artha-śāstra. These works though later, seem to have preserved the old tradition. The weight of the Niṣka as given in Viṣṇu, Yagñavalkya. and Manu (though differing from that given in the Artbaśāstra) was equal to that of four Suvarṇas, which was equal to 80x4 – 320 Krsnalas. Thus says Manu (VIII. 135):

Pañcakṛṣṇalako māṣaste suvarṇasca śodaśa.

Palam suvarṇa-catvārah palāni dharaṇam daśa.

Yāgnavalkya speaks in similar terms. Viṣṇu also says (IV. 10) that a Niṣka was equal to four Suvarṇas (Catuh suvarnako Niṣkah.)

Apart from these Niṣkas, two other metallic standards of gold and silver came into use during the close of the Vedic period. Of these, the first was the Kṛṣṇala—a bit of gold equal to the weight of a Kṛṣṇala. This would appear from the evidence of the Kāṭhaka Samhita and of the Taittirīya Samhitā. The first named work refers to a gold Kṛṣṇala (XI. 4—*e.g.* Hiraṇya-kṛṣṇala). The other work (see-Taitt. Br. 1.3.6.7) mentions the gift of one Kṛṣṇala each, to the participators in a race. It is mentioned also in the Taittirīya Samhitā (11.3.2.1.) and in the Maitrayani Sam. (II. 2.2).

As to the Śatamāna of gold, it is repeatedly mentioned in the Kāṭhaka Samhitā and the Śatapatha Brāhmaṇa. It was evidently a gold piece of the weight of 100 Kṛṣnalas. In the Śatapatha Bṛāhmaṇa, in connection with Rājasūya, we are told of the fastening of the round (vṛtta) Śatamānas, behind the hind-wheel of the cart-stand and these were then directed to be given to priests. (śat. Br. V. 4. 3. 24). Many other passages (XII. 7. 2, 3,; XIII. 2. 3. 2) contain this reference to the Śatamānas, which were given as fees to the Brāhmaṇa priests officiating in the sacrifice. The Śatamānas, were one of the principal metallic standards used in India, especially in those regions where the Black Yājurveda and the Śatapatha Brāhmaṇa, were composed. Later authorities like Panini Manu and Yāgñavalkya, refer to these Śatamānas which were both of silver and of gold. (see Manu VIII. 135 to 138 and Yāgñavalkya I. 364-366).

Stamping —In conclusion we may sum up that the above mentioned metallic pieces, were in large circulation in the various regions of India. Whether, they were coined money in our sense and bore any stamp is yet to be decided. Dr. Thomas in his article on Weights and Measures (vide Numismata Orientalia) took the word Viśvarūpa to mass "pervaded or covered with forms and symbols" instead of "omniform" as suggested by others, and thus tried to prove that the Niṣkas were stamped and bore inscriptions. This is however going too far, and we cannot as yet base our conclusions on the evidence of a single word. The practice of stamping Symbols, is rather late in the history of money, and as far as India is concerned this may be taken to hold good. Most probably

the weight and fineness of these determined their value. In connection with the circulation of these as well as in all transactions with regard to gold—the Kṛṣṇala came to be regarded as the primary standard of weight. The evidence of the Śatapatha Brāhmaṇa seems to point to the acceptance of the Pāda–(1/4) as a standard (Śatap. XIV. and Brhadā. Upa. III. 1.1. etc.).

Sources of Gold: As to the sources of gold, very little is known. But this large circulation shows that there must have been sources of local supply. Even the Dravidians and Aborigines are spoken of as owning gold in the hymns.

Keith and Macdonnell are of opinion that in those days gold was obtained from the bed of the rivers (Vedic index II. p. 504). They think that the extraction of gold from earth was known (R.V. I. 117. 5. A.V. XII. 1.6.). Washing for gold is recorded (Taitt. Sam. VI. 1. 7. 1; and Satap. Br. II. 1.1.5).

The use of gold and silver however, did not abolish or put an end to the use of other standards of value, and the cow served this purpose for a long time. According to the Dharmasūtras, fines for murder (Vaira) continued to be assessed in kine. Pāṇini, too, mentions the purchase of articles (with cows) in terms of the cow. Thus in his Sutras we find the word Pancagu (any thing purchased with 5 cows). Barter existed for a long time and even during the period of the composition of the Jātakas, rice was used as, a standard of value.

Socio-Economic Life in The Vedic Age

The hymns of the *Rigveda* the later Samhitās, give us pictures of different stages of social progress. The absence of proper landmarks, as well as the difficulty in differentiating the srata stand in the way of separating, these various phases of social evolution. In spite of this however two distinct phases of economic life can be distinguished *e.g.*

1. During the earlier of these two stages the nomadic instinct predominated. The tribes were more or less in a migratory

condition; villages and settlements moved from place to place. In such a state of life cattle-rearing remained the chief occupation of people though agriculture during the period of temporary settlement was not altogether neglected. Constant wars, either with the aborigines for self-existence, or internecine feuds continued. Victory in battle not only ensured life and existence, but brought in the wealth of the conquered and consequently added to the prosperity of the community.

2. This state of existence was gradually supplanted by a more settled condition of life. Agriculture became the chief feature of social life. Everybody took to agriculture excepting perhaps the warrior or the priest, who accompanied the conquering host. Villages were established in the midst of the fertile conquered country—the conquered being pushed back either to the bills, or allowed to live a life of servility on conditions of submission, service or tribute.

Land was plentiful. The conquering tribes were hardy and vigorous. They were as yet not imbued with any high notions of personal dignity. Labour was not distasteful to them. In such a state of affairs, their progress was rapid. The whole fertile plain of Northern India was appropriated and colonized. Villages were established all over the country. Each village contained a number of families, each family contained a number of able bodied either had joint interests in the field, or worked under the authority of the head of the family i.e., the Grhapati—the lord of the house. The Grhapati, whether the eldest male member of the agnatic group or simply the father of the children, was the master of the house, who exercised control over the family superintended their working in the fields, and performed also the sacrificial duties of the home.

The Vedic House

Each one of such families possessed its own separate, dwelling. The Vedic house variously designated as Kṣiti—Dama, Pastyā, or

Harmya, was so constructed as to suit the needs of a people whose main occupations were agriculture and cattle rearing. Generally it was a walled-up enclosure containing not only apartments for the family, but room for the sheep and cattle, so valuable to the Vedic householder. We get a good description of the Vedic house from the Atharva Veda (see A. V.III. 12; A.V.IX.3.) which gives us not only description of the house, but tells us of the contents of the house. In the Gṛhya-sūtras we find direction laid down as to the choice of the ground on which the house was to be constructed. In the *Rigveda*, Atharva Veda and the Kauśika Sūtra we find innumerable prayers offered to "the God of the house" or to the "Queen of the house" for the sefety of the house and the prosperity of the family dwelling therein.

From the description in the Atharva-veda IX. 3 which concerns itself mainly with the consecration of a newly, constructed house, it appears that the house of the Vedic Aryans stood in the midst of a walled up enclosure. It was constructed mainly of bamboo and wood. Perpendicular posts or vertical pillars (Upamit) were set up on the ground and there were cross-beams (Parimit). Bolts and ropes were used for fastening the poles. The roof was formed with bamboo poles and was thatched with straw or with mats of reeds. The Atharva Veda (IX. 9.) describes the house as grass-covered and straw-clad. The extensive use of wood, bamboo and straw, is further proved by innumerable prayers which we find in the Atharva Veda against the ravages of fire which readily consumed these materials, and thus put the family in a state of destitution and helplessness. In this connection the material used by Indo-Europeans in constructing their houses is worthy of comparison. According to Schrader the early Indo-European houses were built of wood, basket-work and loam and not of atone (see Schrader. Pre. Hist. Ant. P. 342.).

The house generally contained several apartments. One reserved for the sacred fire (Agniśalā). Some were reserved for the women of the house (Patnīnām Sadanam) or for other members of the family. In addition to these, there was a big store-room or Śalā full of clear corn (Pūti Dhānya) and sheds for sheep and cattle. In the

Atharva Veda (III. 12) the owner of the house speaks of his sheep, goats and cattle. The house itself is described as a spacious store full of clean corn. Rooms were furnished with Śikyas for hanging vessels and contained the necessary furniture *e.g.* wooden chairs, bedstead, the pestle and mortar, the winnowing basket, spoon, ladle, fork, wooden tubs, and earthen pots etc.

In every house, guests were welcomed and attended to. The Atharva Veda (IX.6.) mentions an Avasatha in this connection, but it is difficult to determine whether it was a big apartment set apart for that purpose. This was the Vedic house of simpler construction used by poorer householders. Most probably richer people and princes lived in more comfortable dwellings made of stone or other materials. They seem to have employed doorkeepers and a large number of attendants (A. V. IX. 6). In the *Rigveda* we find mention of forts of stone and houses of three materials (R.V. VI. 46. 9) and in another place we find mention of a house with 1000 pillars (R.V. V.626). But from this we cannot form any opinion as yet. The use of brick came into vogue during the time of the later Samhitās. Brick—both burnt and unburnt were used for constructing fire-altars or pillars (see Yajurveda XIV; Taitt. Sam.; and Śatap Br.) The Vedic householder regarded his house as his strong-hold and was intensely attached to it. The house was supposed to have its own presiding Deity and his favour was constantly sought. The householder's devotedness to his dear home is amply expressed in a hymn of the Artharva Veda (see A.V VII, 60) in which a parting traveller bids adieu to the houses of his village, in terms which amply express his warm attachment to his own house and the comforts dwelling therein.

Household Furniture and Implements

As to house-hold implements, utensils and furniture, we get some interesting details from the Atharva Veda (A. V. IX. 3 and A.V.IX.6). Of implements, there we find mention (apart from those used in sacrificial purposes) of the pestle and mortar made of stone, the winnowing basket, the spoon, the ladle, the fork, the stirring

prong, cooking pots and jars (Droṇa-kalasa), vessels (Pātrāni) made of metal, wooden tubs, and various other things made of khadira or udumvara wood. Of other furniture, we have the Asandī which according to the Atharva Veda and the Brāhmaṇas was a rocking chair, made of wood and cordage, the Proṣṭna or lying bench for women, the bedstead, the pillow (Upabarhaṇa, coverlets) (Upastaraṇa Upavāsana) cushions and mats made either of grass or of kusa, antilope's skin and such other articles. In the Kauśitakī Up, we find mention of the Paryanka and later on of the Prenkhā (see Kathaka XXXIV. 5, Panch. Br. V.5.7 Dolā).

Food: From the above two hymns, in addition to scattered, references elsewhere, we get some interesting details about the food and drink of those days. In connection with the food of Vedic Aryans the following may be mentioned:

1. The milk (Payas) of the cow, goat, and buffalo was used. From it various preparations were made. Fresh milk (Payas) and mixed milk (Payasyā), are separately mentioned, as also butter (Navanītā), creamy butter (Phāṇṭa), Ghṛta, and curd (Dadhi). Goat's milk is mentioned in the Taitt. Sam. (V. 1. 7).
2. Various preparations of rice, barley and wheat and other food grains and cereals were used. Thus, barley, rice, or wheat were either parched or boiled in water or soaked in butter. Of fried grains we find mention of Saktu, Parivāpa, Laja. Wheat, barley or rice were often crushed powdered or boiled and made into various kinds of bread or cakes along with milk and other ingredients. Of such we have the Piṣta, Purodāśa, Apūpa, Pakti. Rice was Often boiled in milk and this kind (Kṣīraudana) of food was highly valued Brahmaudana was offered in the sacrifices (A.V. IV, 35.7, XI. 1.1). Taitt. Sam. III. 4.8.7). Other varieties of mess were used and we have mention of Dhadyaudana, Mudgudana, Tilaudana, Udaudana, Ghṛtaudana, Mamsaudana.

3. Meat—The Aryans seem to have been fond of meat-eatting. The flesh of sacrificed animals *e.g.* of the cow, the buffalo, the sheep, goat, and occasionally of the horse, was taken by all classes of people. In addition to these, the flesh of hunted animals and of various birds was taken. The taking of beef or the flesh of the buffalo or the hors gradually came into disfavour. Meat boiled with rice (Māmsaudana) was highly prized. The question of beef-eating has been discussed separately, in connection with the cow. Moreover, various kinds of fruits and vegetables and honey were also largely used.
4. Fish—We hear very little of fish-eating in the early Samhitās, though in later periods fish-eating was not condemned. Far from that, fish was regularly prescribed food and was offered to guest and the manes.

Domestic Labour and Household Economy

As the Gṛhapati looked after agriculture and the farm, many of the household duties were entrusted to the women of the house. The Gṛha-patnī (or the Gṛhapati's wife) was an 'alter ego' of the husband and assisted him in the maṅagement of the affairs of the family. The evidence of the marriage-ceremonial shows, that assistance in household affairs was considered part of the wife's duties. She took part along with her husband in ceremonials and sacrifices. The Atharva Veda (XI 1.3) shows how they joined in offering sacrifices and how she had often to take care of the household fire.

In matters of domestic economy, the wife had supreme voice. In the marriage-hymns she has been described as the Samrajñī in her father-in-law's household. Philological evidence shows that in more ancient times it was the mother (Mātā) who distributed the food, while the daughter (Duhitā) engaged in milking kine. Similar duties were entrusted to the other ladies of the household. Weaving or plating was once entrusted to women. This is proved by an old simile which represents day and night as two women engaged in

weaving and which has been already referred to. Again, the marriage hymn (A.V, XIV. 1.48) which speaks of goddesses wearing garments (see A.V, XIV. 2.51) refers to the soft touch of the garments woven by the bride. Cooking was left to women, as is proved by many passages of the A.V, (XII. 34), and by the evidence of the Taittirīya Samhitā (V.I. 7). That the wife bad to partake of the husband's burdens and household-duties, seems to be suggested by some of the passages in a marriage-hymn of the Atharva Veda. For instance, we read: "Blest be the gold to thee, blessed the water, blessed the yoke's opening and blessed the pillar." (XIX.I—RV, X.85).

Here, the yoke's opening stands symbolical of agricultural operations, while the blessed pillar refers to the wife's participation in the work of the threshing floor. Husking, winnowing and many other similar duties were entrusted to women, though towards the close of the Vedic period slave girls and slaves were employed (see A V, XII.3.13). The tending of the cattle, while at home, was part of the house wife's duties as would appear from a passage of the marriage hymn, in which Vṛhaspati is asked to make her gentle to the cattle. All these marriage hymns end with prayers for the long life of the married couple, and we have prayers not only for prosperity, devotion to the husband, but also for children, so that these when grown up might assist their parents. The labour of women thus played a prominent part in domestic economy. Consequently, in the Vasor-dhārā hymn, we meet with the prayer that women might become industrio.

The Vedic Householder's Condition

From a study of the Vedic literature it would thus appear that the average Vedic householders lived a life of self-sufficiency. With the exception of the princely warriors or the sacrificing priests—high in the favour of the former, the mass of Vedic householders, depended mainly on their own exertions. Every man had his farm and cottage. He worked his own fields; the agricultural products supplied the requirements of the family, and his chief wealth consisted of his cattle.

Life was simple: There was very little of luxury, as well as of scarcity. A man's wants were few and his own exertion placed him above want. But this state of affairs did not last long. Conquest brought in wealth. Luxury invaded society, gambling, or want of thrift reduced families to poverty, and much of this wealth passed into other hands. Capitalism came to be introduced. Usury came to be the occupation of the rich. The merchant made large profits; the normal distribution of wealth was checked. Money came to be accumulated in the hands of the few. The land-less and homeless poor, had to live either by begging or had to take menial service. Craftsmen protected their own interests by formic unions. As to the growing complexity of social condition, we find indications throughout the whole of the later Vedic literature. In this connection the following points are to be noted.

1. Growth of capitalism—proved by the existence of debts and usury and the growth of banking.
2. Growth of a landed aristocracy,
3. Growth of social inequalities.

Capitalism

Capitalism grew: Its growth was facilitated by various circumstances and by various causes. Apart from the tendency to accumulation in the case of thrifty individuals, this was helped to a certain extent by the existence of freedom of disposal of property. There was very little of restrictions on transfers, whether of chattels or of real property. A study even of the *Rigvedic* hymns shows that from very early times, men enjoyed a certain amount of freedom in the disposition of their property. Sale of houses or lands either to a purchaser, or for the sake of satisfying debts to creditors, was allowed even in those days. The evidence of R.V. (X. 34) shows how a man could spend his whole fortune even for gambling. In the case of heads of families, they were most probably unfettered in the matter of disposal of their property. As long as they lived they exercised some control over their children, but this authority of the head of the family never approached that of a Roman 'pater familias.'

Children could divide in the very life-time of their father, and this added much to the freedom of disposal of property.

Money Dealings and Debts

The religious literature supplies us with very little information is regards money dealings. But in spite of this, we know something about these. Even from the evidence of the *Rigvedic* hymns, we find the existence of money transactions. In that book we meet with the word Rṇa, meaning debt. Debts were contracted for various purposes, gambling being one of them (R. V. X. 34. also A. V. VI. 119. 1). It often reduced men to slavery. Debtors were bound by the creditor, and according to some they were fastened to posts to be exposed before the public, pressure being thus put on them for re-payment (R.V. X. 34). The *Rigveda* contains references to the repayment of debts (R.V. VIII. 47. 17), and in the Atharva Veda we have prayers to the gods for absolution from sin arising from non payment of debt. The information supplied by three hymns of the A.V, is of interest in this connection (A. V, VI. 117, 118, 119). In the first, absolution from the sin arising out of debt is asked for. Some passages are really significant arid show how in those days non-payment of debt was regarded as a sin which brought consequences in the other world. The reciter expresses his willingness to 'throw away the grain to pay his debt' and prays further.

"May we be free in the world and that yonder.
In the third world may we be un-indebted.
May we debt-free, abide in the pathways, in all the
Worlds which gods and fathers visit."

The next two hymns ask forgiveness for cheating and incurring debt in dice-play. The last one contains a clear reference to an intention of non-payment, and shows how the moral idea came to be masked by motives of deception. The Kauśika Sūtra directs these three hymns to be uttered on the occasion of repayment of debts, or on the decease of the creditors. The Atharva-Veda makes a reference to the creditor's wife (A.V, VI. 118) to whom, probably, the debtor was liable to pay on the demise of her husband. The

consequences of debt told heavily on the debtor, and consequently on society. The evidence of R.V, X. 34, shows that the debt for gambling reduced people to proverty. Everything was exacted, even the dwelling houses were sold, and men became homeless and destitute.

In some passages of the *Rigveda* and Atharva Veda, there are references to interest, but we know nothing about the rates of interest. The *Rigveda* contains the word Bekanāṭa which according to Yāska means a usurer. According to the interpretation suggested by some passages of the *Rigveda*, (R.V. VIII. 47.17 and A.V. VI, 46.3) the rate seems to have been one eighth or one sixteenth (V.I., II. p. 109). In the Atharva Vedic passage, which occurs in a hymn to avert the bad consequences of evil dreams, the citer assigns too evil to the enemy with an addition of 1-8 or 1-16; as in the case of repayment of debts. With the growth of capitalism a new class *i.e.* of usurers arose as is proved by the evidence of the word Kusidin. Probably the rate of interest became heavy, and consequently we find a denunciation of the usurer In the Dharma Sutra literature, where we find attempts to fix rates of interest.

Banking: Money accumulated unquestionably in the hands of the rich, but we have no clear reference to organised banking or banking transactions. The word sresthin, meaning a man of consequence, occurs in the Brāhmaṇas (Ait. Br. III. 30.3; Kausit Br. XXVIII.6; Kaus. Upa. IV. 20 etc.). According to the Taittirīya Br. (III. 1. 4.10) Bhaga was the Śreṣṭhī of the gods. As to the real meaning of the word, we have differences of opinion. Hopkins is inclined to take it in the sense of a modern Seth. Macdonell is inclined to believe that the Śreṣṭhī was the headman of a guild.

Development of a Landed Aristocract

In the earlier stage of simple agricultural life every house-holder owned his plot of land, tilled it, lived a life of simplicity, and practically supplied his own needs. In those days there was hardly anything like a landed aristocracy. The king of the tribe could of course claim his Vali or tribute (see R.V. X. 173), but

there is practically no evidence of inter-mediatory landlords. Gradually, however, a class of landed aristocracy arose and this may be attributed to:

1. The custom of granting villages to faithful servants by the ruling princes, a practice common to all ages and countries. Of this we have no direct evidence, but we may presume that such gifts were common, since princes thought of strengthening their own position by creating a band of faithful adherents.
2. The grant of villages to sacrificing priests or Śrotriyas. We have no early Vedic evidence, but later we find one instance of a gift of a village by Jānaśruti to Raikka, when the latter agreed to teach him the Deity he worshipped (Chan. IV. 2.4.). Such gifts were indeed common, and out of such gifts arose the class of rich Brahmin landlords—the Mahasalas or Mahā-śrotriyas first mentioned in the Chāndogya Up., who were so common in the early Buddhist Sutras, where they are described as enjoying the revenue of villages.
3. The acquisition of superior rights by men of merit over equals. As to these people we have no evidence either in the *Rigveda* or the Atharva Veda, But when we come to the Taittirīya Samhitā or the Maitrāyaṇī Samhitā, we find in connection with special sacrifices, the various rites for Raining mastery over villages. We have directions for the propitiation of Indra or the "All gods" which enabled men desiring villages (Grāma-kāmas) to become owners of villages—*i.e.* Grāmyas or Grāmins. The chief interest of the evidence of these passages lies in the fact that these village-lords attained that position by acquiring pre-eminence over equals (Sajātas and Samānas).

Social Inequalities

As to social divisions, we find, in addition to the princes, the existence of a rich upper class from an early period. The *Rigveda*

mentions Mahi kulas figuratively, and the Maghavan (givers of beauty R, V.I, 31, 12; II 6. 4. V. 39.4; VI. 27.8) who were distinguished by their liberality. They were probably the representatives of the richer classes and are repeatedly praised. The wealth of the princes who, stood on a higher level, can be measured from the innumerable stories of gifts of gold, kine, horses and ornaments which they bestowed upon the priests. The Dānastutis in the *Rigveda* (R. V. VIII.) speak of the munificence of these princes. Thus, one sacrificer praises Asanga (VIII. 1), another Medhatithi praises Vibhinda, who gave him 48,000 pieces probably of gold. A third praises Kurunga's gift of 100 (VIII.4), another praises the munificence of Kasa, the son of Cedi, who gave his priest "a hundred heads of buffalo and ten thousand kine." There is another which mentions the gifts of a prince, which included 10,000 kine and three hundred horses. Another hymn records the receipt from Pṛthuśravas, 60,000 pieces, ten thousand kine and 2000 camels (VIII. 46), another records the bestowal of "kine bedecked with ornaments of sparkling gold"; another records the gift of 50 slave girls (VIII, 19), while yet another, records the gift of 100 asses, 100 slaves and sheep. Many other hymns speak of large money-gifts in standards not specified therein.

As in the case of the princes, the wealth and liberality of the rich Maghavan is clearly apparent. The munificence of the rich Maghavan may be appreciated from constant praise bestowed on the people who made gifts of horses, cattle, clothes, and gold to their priests (R.V. X. 107). They are praised in glowing terms, and they came to occupy a high social position. In one place, munificence is described as making a man the chief in his village (X. 107) and highly honoured by the community. We are told that "the liberal die not—neither are they ruined, they suffer neither harm nor trouble—the light of Heaven, the universe about us, all this doth sacrificial gverdon (gift) give him." The Taittirīya Samhitā goes further and says that "wealth the true basis of excellence."

On the other hand, the evils of unequal distribution were very keenly felt. The misery of the homeless and starving poor is described

in some passages of the *Rigveda*. Some hymns (see X. 117) of that book tell us of the hungry poor, who go to others for food. The whole of the 117th hymn of the tenth Maṇdala, dedicated to 'hunger' and attributed to 'Bhikṣu,' repeatedly inculcates upon the rich the duty of feeding the poor. Society expected the rich to contribute to the alleviation of distress and the miserly conduct of the niggardly rich was denounced. "The man who does not offer to the gods, nor give alms to the poor," we are told, "is a miser who feeds upon sin only." The same hymn (X, 117.9) dwells upon the inequality of human fortune and of liberality (capacity to give alms to the poor.) The similes there are really suggestive. We are told that as the two hands of a man are not equal, as two cows born of the same mother differ in their milk-bearing capacity, as the strength even of twin brothers is not equal, even so men are not equal in their fortune or their liberality. The preceding verses tell us how the unequal distribution of wealth came to play a predominant part in the evolution of society, how the rich came to be adored by men of lesser social position or wealth, and how the poor sank lower in the social scale. As we proceed onwards, we find a multiplication of hymns directed against poverty. Wealth came to be a criterion of social position; social inequalities grew more and more, and the old simple state of existence passed away.

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6

Economic Background of Epic Society

The Epic age in India is named so because some of the greatest epics came into being during this time. The epic period is estimated to be roughly from 1000 to 600 B.C. The ancient Indian society is described in a very vivid manner in these three epics. The two famous Indian epics that were created during this time were the *Ramayana and Mahabharata*. The very ideology of Hinduism is based on these epics. The Mahabharata is a foundation of the religion that is thriving today. We get a clear picture of the kind of life people led during that point of time. According to the evidences found in the epics, the society was basically rural in nature. People remained prepared for any attacks or external aggressions by keeping weapons with them. The rulers were not chosen but were hereditary. The main economic activity was agriculture and small scale industries like arts, handicrafts, pottery, etc. thrived.

The epics tell us about the way the society was ruled at that time. The King basically filled his treasure vault with the taxes collected from people. He was the highest authority who had the power to punish and pardon. The priests were given the task of performing the religious rituals and sacrifices to make sure that no evil forces hampered the kingdom. With time, the priests began to

gain power and also started to influence the king. The king listened to them because the priests were highly learned people who were supposed to be the voice of Gods. The warriors were trained in using weapons and were supposed to be the protectors of the palaces. Though caste system was there, it was not too rigid. A warrior or an out caste could become a priest if he was adopted by one. The most respected and feared of all were the Dravidians who could not be questioned and were unaffected by the society. The most popular recreational activity was gambling. Horse racing, hunting, gambling, etc. were all introduced during the Epic Age in India.

Agricultural Economy

Land Revenue

It has been held in the Mbh (12.78.2), that the king was the owner of all the properties belonging to the non-*brāhmaṇas*, as well as of those *brāhmaṇas* who followed an unapproved profession. This view is corroborated by Yudhiṣṭhira's act when after the *Aśvamedha* sacrifice he donated his entire kingdom to Vyāsa and Vyāsa returned it to him (14.91.7,17). From this it appears that theoretically all the land in the kingdom belonged to the king. There was, however, another theory. The king's share of the revenue was limited to one-sixth of the produce of the land (13.113.16). A well-known verse in the *Mbh* (12.72.10) says: The king should wish only for his lawful salary [which consists of] one-sixth of the produce, śulka [various taxes] and money realised as fines. (12.308, 158). It is also stated (12.25.12 and 12.69.24) that the king gets the revenue (*bali*) of one-sixth of the produce, because he protects the people. This again was a theory, for there is no indication that the kings ceased to collect revenue if they failed to give protection.

The *Mbh* differs from Manu (7.130) which lays down that the king should take one-twelfth, one-eighth, or one-sixth of the grains as his share. Kulluka explains that this difference in the royal revenue was based on the fertility of the soil, and the amount of labour necessary to produce the crop [that is, the distance of the nearest available irrigation water]. This difference in revenue rate

is found in other Dharmaśāstra texts also, such as Gautama (10.24-25) and Bṛhaspati. Others, however, like Bodhāyana (1.18.1) and Vasiṣṭha (1.42) merely state that the king's share is one-sixth of the produce (lit. wealth or income of his subjects). There is one reference in the *Mbh* indicative of a lower revenue. It states. (The high spirited king, who is engaged in the performance of kṣatriya's duty is satisfied with one-tenth, and others with even less). 'Others' have been explained as 'lesser kings', but it is difficult to understand as to why the smaller kings should have been satisfied with a lower share of the revenue. But this verse is a recommendation by a woman ascetic and need not be considered seriously.

On the whole, it appears that the contemplated land-revenue was one-sixth of the produce of the land irrespective of any other consideration. This flat rate would have discriminated against small holders, cultivators of less fertile lands, and those farmers who had to fetch irrigation water from a distance. The nature of produce was also not taken into consideration. If the same rate of revenue was universally applied then the fruit-growers would have suffered compared to growers of coarse grain. It is stated in the *Mbh* 7.44.27 that a mango garden bears fruit after five years. Even if during these five years the mango-grower did not pay any revenue, it would have been hard on him if one-sixth of his produce were collected as revenue on the first year's fruit Possibly there were some methods of adjustment which we do not know.

In the Ram (3.1.18) it is said that the king's share is one-fourth, but from a later reference (3.5.10) it appears that revenue was one-sixth of the produce. It is quite possible that the higher revenue was levied on fertile and irrigated lands. There is no means of ascertaining the total revenue of a kingdom at is stated that *brāhmaṇas*, *vāṭadhānas* and a large number of owners of herds of cows (*gomantas*) were found waiting on Yudhiṣṭhira with reveneu (*ball*) amounting to three *kharvas* (2.45.24). A *kharva* denotes 10,000,000,000, hence three *kharvas*, in whatever coin, would be an incredible figure. It is evident that this description of Yudhiṣṭhira's wealth by Vidura is highly exaggerated, but it gives an idea of the

large amount of revenue. Secondly, since the *brāhmaṇas* were bringing *bali* it is apparent that they too were not exempt. *Vāṭadhāna* means the descendant of an out-caste *brāhmaṇa* by a *brāhmaṇi* mother, and probably indicates a *brāhmaṇa* community engaged in agriculture as distinct from other *brāhmaṇas* mentioned in the verse, who had their land tilled by *vaiśyas or sūdras*. They may be called the ancestors of present day jotdars. But under the caste system, they would be deemed to be more honourable than those who soiled their lands by tilling the soil.

The practice of share-cropping is directly referred to not only in the *Mbh*, but by Manu and Yāñavalkya also. The *Mbh* (12.60.24-25) allows the *vaiśyas* one-seventh of all the produces of the land which he has cultivated on behalf of either a brāhmaṇa or of a rājan, which normally means a king, but in the present context seems to indicate *kṣatriyas* in general. Manu (4.253) says: [*A. brāhmaṇa*] may eat food cooked by a *sūdra* who is, an *ārdhika*, or a friend of the family [for several generations] or a slave, (or servant), or a barber, or one who has offered his services. Medhātithi has explained *ārdhika* as *ardhaśiri*, presumably following Yājñavalkya (1.166) who practically repeats Manu: "The two verses are identical except that Yājñavalkya uses *ardhasīrī* instead of *ārdhika*, but both the words mean "a ploughman who takes half the crop for his labour".

It is however peculiar, that while Manu and Yājñavalkya allow a *sūdra* share-cropper to take half the produce, the *Mbh* allows, a *vaiśya* only one-seventh. This discrepancy can have two explanations. Firstly, while we have rendered *ārdhika* and *ardhasīrī* literally, the commentators have not done so. Medhātithi explains the two terms as *kuṭumbī bhūmi-karṣaka*, which means simply a "sharecropper". Kulluka explain the term *ārdhika* as *kārṣika*, that is, 'a cultivator'. Neither of them says anything about the share which was the *ārdhika's* due. Similarly, Vijñāneśvara explains *ardhasīrī* as *kṛṣi-phala-bhāga-grāhī*, which also means simply a 'share-cropper' and Vijñānesvara too does not mention the share. It seems therefore, that whatever may be the literal meaning of *ārdhika* and *ardhasīrī*,

the actual tiller's share depended on contractual terms or local usage and custom, but in no case exceeded half the produce.

The other explanation may be that the *vaiśya* merely supervised the cultivation which was done by the *ārdhika*, and one-seventh of the produce was given to the former as his fees as a steward, or as an intermediary. It will be noted that both Manu and Yājñavalkya have used the word *dāsa* in this connection. But Medhātithi explains the compound *gopāla-dāsau* as related terms, meaning 'a cowherd who is a *dāsa*' and does not explain dāsa.which may mean either a servant or a slave. Kulluka takes the compound to mean 'a cowherd and a *dāsa*' but does not explain *dāsa*. Vijñaneśvara, however, explains *dāsa* as *garblia-dāsādayaḥ* (one who is born to a *dāsi* from a slave).

From Medhātithi's explanation it follows that a *brāhmaṇa* (or a *kṣatriya*) had his land cultivated by sūdra share-croppers and his cows were tended by *sūdra* slaves. But though Kulluka and Vijñaneśvara do not assign any specific duty to a *dāsa*, it may be held that *dāsas* or slaves were employed for all types of works including cultivation and animal-husbandry. This would explain the reason for donating slaves of which many example given in the epics. It may be noted that according to the *Mbh* and the Dharmasāstras, the duties of a *vāisya* were *kṛṣi' go-rakṣā* and *vāṇijya*. Evidently *vāñijya* (trade and commerce) being more profitable, the *vaiśya* had given up his exclusive right to agriculture and animal-husbandry in favour of the *śūdra*.

Irrigation

The irrigation of land was as much necessary in ancient times as it is now. It was also realized that dependence on rain water for irrigation was not expedient. In a well-known verse in the *Mbh* (2.5.67), the sage Nārada tells Yudhiṣṭhira: 'I hope that in your domain the tanks are full and increasing [in numbers] and [the water] is divided proportionately; agriculture [should not depend] on rainfall'. This was good advice. Digging of wells and tanks were also considered to be meritorious pūrta work, which induced

kings and rich people to engage themselves in such activities. However, it does not appear that the peasant did not have to depend on rain. In the Ram, Sītā employs a charming simile to compare her pleasure in seeing Hanumat. 'My happiness in seeing you, O sweet-spoken vānara, is like that of earth when she receives rain on her budding crops (5.38.2). Several times in the *Mbh*, waiting with extreme eagerness is illustrated with the simile of a peasant waiting for rain (*suvṛṣṭim ivu* or *parjanyam iva karṣtkāḥ*, 12.349.6; 13.59.14; 13.62.20; 13-24.49; 13.70.10) and in 13.97.23 it is said that all crops are raised by rain water. Excess of rain was also damaging, whence the proverb *gatodake setu-bandha* (can built after the water receded) in Ram (2.9.41) and *Mbh* (7.62.2).

Utsecane stambha is mentioned in 12.288.22. It has been held that this phrase probably refers to the water-lifting apparatus (Tamil: *Erram*) familiar in South India. A stout or full-grown stump of a tree, served as the fulcrum for the bamboo pole, at the end of which was attached the pitcher for lifting up water from the deep well. The epics do not contain any other reference to artificial irrigation. There was of course no scientific study of rainfall, but some acute observations have beeu made. Rāmacandra while describing the rainy season begins by observing: Having drunk the moisture of the sea, the sky produces rain. Almost the same observation is made in the *Mbh* where it is said that 'the sun's rays receive the moisture and then the sun pours down rain. Rain gives birth to *anna* (crops) and *anna* is the life of men. Trees, flowers and plants depend on rains' (13.97.20-23). The cycle of cloud, rain, crops, and life is fully described also in 13.62.36-40, from which it also appears that cultivation depended on rainfall.

These observations show that people were noticing the causes of rainfall, and were no longer content, as in the Vedic days to rely entirely on Indra to produce rain, whom they had to propitiate by performing sacrifices. The *Gītā* (3.14), however, repeats the old view and ascribes rainfall to the performance of sacrifice which is therefore recommend. The *Mbh* (5.97.7) only goes to the extent of saying that Airāvaṇa (Indra's elephant or cloud) collects water

from the sea with which Indra produces rain. No rain-producing sacrifice is mentioned in the epics except in the *Gītā*. There is a reference to extensive irrigation work in the *Ram* (2.74.10-11). It is said that while Bharata was marching with his host to meet Rāmacandra in the forest, his men erected dams wherever it was possible to do so, and soon excavated water courses to carry off excess water (*parivahan bahūdakān*), and created many lakes as large as oceans. They also excavated wells of various kinds, and had them surrounded by, raised platforms. In the same context it is said that while Bharata's men felled many trees to prepare the road, they planted trees where there was none (2.74.6-7). Here is probably an early reference to afforestation.

There is no other reference to canal-irrigation in the epics, and it has to be concluded that cultivation depended primarily on rainfall. The tanks and wells served as secondary sources of irrigation water, but these too were liable to become dry in case of acute shortage of rainfall, particularly over an extended period. There is a reference in the *Mbh* to a period of twelve years' famine during which there was no rain (12.139.13). The food situation became so acute that the sage Viśvāmitra was forced to steal dog's flesh from a *caṇḍāla's* house and eat it (12.139.88-9). It should be noted here, that the only reference to any incident in the *Mbh* in Manu is Viśvāmitra's violation of food restriction on this occasion (Manu 10.108). Actually this was *āpad-dharma* or *dharma* during distress, when a higher caste was allowed to take up the profession of a lower caste. The existence of such rules in the Mbh and in the Dharmaśāstra texts show that occurrence of distress, which usually means a famine, was not too infrequent. There would of course be no famine even if the rain failed in the countries situated along a perennial river. But transport of corn from a non-famine area to a famine area in those days must have been impossible. So in the areas away from the river people suffered if the rains did not come.

Rotation of Crops

The epics do not provide details about agriculture, which had considerably developed during Vedic times. The *Taittirīya Samhitā*

(5.1.73) states that there were two harvests every year and adds (7.2.10.2): 'Barley ripens in summer, medicinal herbs in the rainy season; *vrīhi* (rice) in *śarat*: beans and sesamum in *hemanta* and *śiśira* (winter)...' Apparently there was a rotation of crops, *yava* (barley) being followed by *vrīhi* (rice), *māsa* (bean) and *tila* (sesamum). This is corroborated by the *Gobhila* (1.4.29) and the *Khādira* (1.5.37) which state: From the rice [harvest] till the barley [harvest] or from the barley [harvest] till the rice [harvest] he should offer the *balis* or sacrificial rites. Kauṭilya (2.24.12-15) also prescribes rotation of crops and states: '*śāli*, *vrīhi*, *kodrava*, *tila*, *priyangu*, *udāraka* and *varaka* are the first (first sowings): *mudga*, *māṣa* and *śaimbya* are middle sowings; *kusumbha* (safflower), *masūra*, *kulattha*, *yava*, *godhūma*, *kalāya*, *alasī* (linseed) and *sarṣapa*, are the last sowings. Or, the sowing of seeds should be in conformity with the seasons'.

Kauṭilya has used the word 'vāpa' which means 'sowing', but it is difficult to see how *vrīhi* and *sali* could be sown together. Is it possible that Kauṭilya's knowledge of rice cultivation was not quite up to date ? He does not seem to have been very sure of himself, wherefore the alternative that seeds should be sown according to season (2.24.15). *Śāli* rice is not mentioned in the Vedas. Roth's conjecture that *śari* in *śāri-śākā* in the *Atharvaveda* (3.14.5) is equivalent to *śāli* is not at all convincing. *Śāli* is, however, mentioned in both the epics, and these are probably the earliest references to the winter crop. In the Ram (3.15.16-17), while describing the *hemanta* season, Lakṣmaṇa speaks of early winter with forests full of *yava* (barley) and *godhūma*. He then describes the golden *śāli* and compares the ripe ears of corn with *khurjūra* (date) flowers. In the *Mbh* (5.81.7) it is stated that Kṛṣṇa set out for Hastināpura in the month of Kaumudī (Kārttika). On his way he saw beautiful rice-fields (*śāli-bhavanam*) full of all sons of grains (5.82.15).

State and Agriculture

The epics do not say as to what steps, if any, the government undertook to alleviate suffering during famines. The nature of the

āpad-dharma rules raises the presumption that during a period of scarcity, a man had to fend for himself as best as he could, and by any available means. It was, however, contemplated that the state should foster agriculture by providing the peasant with loans at easy rates of interest. In the *Mbh* (2.5.66-68), the sage Nārada first says, that he hopes that the peasants are satisfied. He then asks about the existence of irrigation facilities such as water tanks and warns against depending on rain for cultivation, as has been stated above. He then adds: ('I hope that the cultivators are not dejected by the want of food or seed; (and I hope that) you are advancing 'assistance-loans at the interest of one pratika per hundred.')

A '*pratika*" means 'worth a *kārṣapaṇa* or 16 *paṇas*'. *Kārṣāpaṇa* could be of copper, silver, or gold, and it is not clear what was actually meant. It may be that, interest at 16% or 6% per year is intended but another explanation is possible. Maim (8.142) allows interest on unsecured loans at the rate of 2%, 3%, 4% and 5% monthly on money lent to *brāhmaṇas*, *kṣatriyas*, vaiśyas, and *śūdras* respectively. Yājñavalkya (2.37), Nārada (1.99.101) and Vasiṣṭha (2.48) follow Manu (8.142) but Vasistha states that the interest for a moneylender is 5 *māṣua* for 20 *kārṣāpaṇas* per month. Kauṭilya (3.11.1) says that 'one *paṇa* and a quarter is the legal rate of interest per month on one hundred *paṇas*, five *paṇas* for purposes of trade, ten paṇas for those going through the forests, twenty paṇas for those going by sea.'

It will be observed that all the Dharmaśāstras provide for different rates of interest based on caste, from which Kauṭilya differs. Here the *Mbh* differs from all of them and agrees with *Kauṭilya*. Secondly, the rate of interest in the *Mbh* is lower than that sanctioned by the authorities quoted above. This lower rate was obviously due to the loan being an '*anugraha-ṛṇa*', which we have rendered as "assistance-loan". Thirdly, it was usual to calculate interest with monthly rest in ancient India, but here monthly interest even at $6\frac{1}{4}\%$ would be too high. The use of the word *pratika* seems to indicate that money was advanced at the time of sowing

and recovered in kind after the harvest, and for each 100 *paṇas* the cultivator had to pay corn worth 116 *paṇas*.

On the subject of loan, it may be stated that probably calculation of daily interest (*i.e.* compound interest with daily rest), was known. If the reading is *dina-bhede*, as given in the Bombay edition, is accepted, then it would mean interest charged daily, but if *deha-bheda* of the Critical edition is accepted, it would mean interest charged after the death [of the debtor], and the verse would mean: 'Just as interest continues to be charged by a creditor even after the death (*deha-bhede*) of the debtor, so does the sin committed in this life continue to increase in the next life.' Manu (8.153) mentions four kinds of interest which does not include *dinabheda*. But Bṛhaspati mentions six kinds of interest one of which is called *śikhā-vṛddhi* or 'hair-like interest', meaning interest payable every day and so growing everyday, just as the top-knot on one's head grew every day.

Trade

Definition of Wealth

Wealth has been defined in the *Mbh* (5.112.2) as: "it sustains and causes others to sustain this world, therefore it is called wealth; thus in the three worlds, wealth is the constant [facer])." When Yudhiṣṭhira inquired from Vyāsa the comparative merits of *dāna* (gifts) and *tapus* (penance or special observance) the sage replied (3.245-27-30) that gifts were superior, because "there is hankering for money, which is acquired with great pain. For its sake men give up even their dear lives, and enter the forest or the ocean. Some men take up agriculture or the upkeep of cows, while others wishing for a job leave their homes. It is difficult to part with what has been earned with so much suffering. Hence, in my opinion, nothing is more difficult to be borne than parting with wealth as gift".

It is thus evident that the epic poets were aware of the role of money in a civilized society. Indeed the following verses would indicate that the epic society was acquisitive both by instinct and inclination. Arjuna said to Yudhiṣṭhira: 'Just as many rivers flow

from a mountain, similarly with accumulated wealth all meritorious deeds can be performed. O king wealth leads to dharma, kāma, and heaven; even maintenance of life would be impossible without money. Actions of foolish poor men are as unproductive as a dry pond in summer. He who has money has friends and relatives, the wealthy man is indeed a man; he (alone) is learned. Performance of *dharma*, satisfaction of desire, attainment of heaven, enjoyment of merriment, venting of anger, results of listening to the sacred texts, and suppression of enemies are only possible if one has money. A poor man desires but is unable to acquire it; but, just as a great elephant is followed by a herd of elephants, so does money pursue a wealthy man. (12.8.16-21).

The *Mbh* does not favour the idea that poverty is the passport to heaven. It is said (12.308.50); Poverty does not lead to *mokṣa*, nor does affluence cause bondage; one gains salvation through knowledge, whether he is poor or rich. This verse is intended to discourage house-holders from taking a vow of poverty, or to feel that indolence and insensitiveness to wants were forms of religious observances.

We have described the condition of poor man in the next chapter. The picture that emerges from the epics is that of a vigorous society intent on luxurious style of living. This attitude made the acquisition of wealth an essential object of life. The uninhibited pursuit of material welfare was mainly restricted to two castes, the *kṣatriyas* and the *vaiśyas*, though the *śūdras* were probably not entirely left out. The moral of the Bhārata War is that even the most high-minded *kṣatriya* would not stop at anything to gain his ends. Trade and commerce were the exclusive preserves of the *vaiśyas*, and partly at least of *śūdras* also. There is no reason to believe that they were less keen than the *kṣatriyas* to attain that ends, or were more human in their disposition.

VÊrtÊ.

The Mbh (3.149.31) says: The three Vedas, *vārtā* and the *daṇḍanīti* the three sciences.) Of these the study of the Vedas and

of the *daṇḍanīti* were for the *brāhmaṇas* and the *kṣatriyas* respectively, while *vārtā* was in the domain of the *vaiśyas*. This is in accordance with Manu 7.43, and very closely agrees with Kauṭilya and the authorities quoted by him (1.2.1.4). The *Mbh* (12.68.35) also says: This world is rooted in vārtā, and is sustained by its trine aspect.) Emphasizing the importance of *vārtā*, Arjuna told Yudhiṣṭhira (12.161.10): O King, this is the world of performance; here *vārtā* reigns; [*vārtā* is] agriculture, trade, upkeep of cows and various arts and crafts.) To this list Bhīmasena adds the *kārus*, that is technicians, and mechanics. Of these vocations Kauṭilya assigns agriculture, cattle rearing, and trade to *vaiśyas*, and *vārtā*, *kāru* and *kusīlava-karma* to *śūdras* (1.3.7-8).

Kauṭilya has explained (1.4.1) that *vārtā* is *kṛṣi-pāśupālye vaṇijyā ca vārtā*. It is evident that Kauṭilya is allowing the śūdras to engage in trade, which is not in strict conformity with the Dharmaśāstras, particularly during normal times. But it seems that the position of the *śūdras* in the *Mbh*, though not unequivocal, is more in line with Kauṭilya than with Manu. Of the three main branches of *vārtā*, agriculture has been discussed above. We shall now discuss the other two, namely, cattle-rearing and trade.

Cattle-rearing

The term usually employed in the Dharmaśāstras and the *Mbh* is *go-raksā*, that is 'upkeep of cows'. But the references in the *Mbh* to wool show that, sheep, and probably goats too, were reared. As has been noted above, Kauṭilya uses the term '*pāsu-pālya*' which includes all the three animals. It is possible that the vaiśyas raised only cows, while the *śūdras* kept all sons of domestic animals. From the Vedic times, cow has been regarded as a form of wealth, and gift of cows to the *brāhmaṇas* was considered to be a highly meritorious act. Dilating upon the merit of such gifts, Bhīsma says: ('O Bhārata, [cows] provide [us] with milk, *ghī* curd, dung, skin, bones, horns and hair. (13.65.38). The use of cow's hair is difficult to explain. Cow's bone could have been used as a manure. Cows' horn have no use now, and it is buffaloes' horn which is used to

make various objects of art and toys. Cow-dung is used both as manure and as a fuel.

The skin etc. must have been of a cow which died a natural death, for giving of a cow for the purpose of slaughtering it is prohibited. It is also stipulated that one should not give a cow for slaughter or to a *kīnāśa* or to a *nāstika* (13.65.49). *Kīnāśa* is sometimes explained as 'one who tills the soil with bulls or cows.' But this rendering is unsatisfactory, as bulls have been used continuously from the Vedic times for drawing plough. One commentator has explained *kīnāśa* as *daridra* (poor), which seems to be the proper explanation. A poor man would be unable to feed the cow properly and might be tempted to overwork it. *Nāstika* means an atheist, and the *Mbh* has denounced them in various places. As the gift of a cow was intended to bring religious merit to the donor, it was useless to give it to an irreligious man. Cow was not only used for drawing a plough but also used for grinding corns (6.99.3).

There is some indication that the upkeep of cows was developed to the point of its becoming a 'big business'. A class of people is refered to (12.88.33-38) as *gomin*, who paid taxes (33), lived in forests (34) and caused the state, commerce and agriculture to flourish (36). Nīlakaṇṭha has rendered the word *gomin* as *vaiśya* which may not be wrong, but does not explain why they are called *araṇyavāsinaḥ* (34). Dr. Belvalkar has explained that the *goamins* were a wandering tribe that tended herds of cattle in forest, and were in some measure the itinerant capitalists of the realm. Dr. Belvalkar's suggestion seems to be quite justified.

State Policy on Trade

The idea is that a gardener waters the plants daily, weeds them, adds nourishment in the form of manure, and guards them carefully. As a result he is rewarded with flower and fruits year after year. On the other hand, a charcoal-burner cuts down the tree and burns the wood, thereby getting only one supply of charcoal. Similarly if a king overtaxes his people, he may gain temporarily, but will ruin

agriculture, trade, and commerce. By fostering their growth, he will benefit permanently. Bhīsma says to Yudhiṣṭhira that a king's income (*vetana*, lit. salary) is derived from *bali-saṣṭha*, that is one-sixth of the crops as revenue, *śulka* (various taxes) and fines realised from offenders (12.72.10). We have already dealt with *bali* and are not here concerned with the fines. It is, however, necessary to discuss the nature and incidence of *śulka*. In this connection Bhīṣma says that a man who daily attends to his cow enjoys her milk; similarly a king who looks after his subjects gains his objects (12.72.17) and then adds: 'O king, be like a gardener, and not like a charcoal-burner, and thus you would be able to enjoy your kingdom for a long time.' (12.72.20)

The principle of taxation was based on what may be called the theory of gradualness. As Bhīṣma said to Yudhiṣṭhira (12.89.5-13). 'O king, one should drink the state (*i.e.* collect taxes) [as imperceptibly] as a leech [sucks the blood], or as a tigress, which carries her child without biting or letting it fall. Just as a rat gnaws at the foot of a sleeping man so softly that the man merely shakes his legs slightly, so should a state be taxed (lit. drunk). [The king] should increase his prosperity by making [the subjects] give little by little. Then he should increase [the tax] gradually but certainly. Just as a young bull's load is frequently increased by very small measures [so do you begin to tax lightly and increase the taxes gradually,] without drawing the hooso [through the bull's nose] too lightly. Once the noose is properly fastened (*i.e.* the bull is under control) it cannot become violently disposed; thus should the bull be trained to carry the full load. It is difficult for a king to control everybody, so he should propitiate the leaders and enjoy (*i.e.* collect taxes) from the ordinary men. Thereafter, by creating a division between the two groups, mutually staring at each other, the king can, at his pleasure, effortlessly enjoy (*i.e.* collect taxes from) all persons by consoling them. The king should not impose taxes on them at the wrong place and at the wrong time. [The king should collect taxes] in proper time, in proper manner, mildly, and in due order.' Bhīṣma again says (12.88.17-20): A wise man should [collect

taxes] from the state on the analogy of cows. O Yuṣṭhira, the calf of an under milked cow is stronger and capable of carrying heavier load than the calf of a over-milked cow. Similarly a state is impoverished by overtaxation. The king who treats his state with kindness and maintains himself within his income achieves great result'. Manu (7.129) also recommends that a king should collect taxes as gradually as a leech sucks blood, a calf drinks milk, or a bee collects honey. The purport of this recommendation is, as Kulluka explains, that the king should not destroy the capital (*mūladhanam* anucchindata), but collect the taxes gradually in installments.

This was a shrewd but practical principle of taxation, which was not inimical to the development of trade and industry. As the quantum of tax depended upon the prosperity of trade and industry, the kings were advised to foster them carefully, for, the yield of revenue from taxes on trade and commerce was only next to land-revenue. And while the land-revenue was more or less fixed and depended on the vagaries of the season, these taxes or *śulka* provided the kings with an ever-growing source of income. Nārada's advice to Yudhiṣṭhira was (2.5.103-07): "I hope that foreign merchants are made to pay taxes (*śulka*) by your officers. I hope that the merchants bringing merchandise are not cheated or insulted by your officers... I hope that you are providing the craftsmen (*śilpins*) capital (*dravya*) and accessories (*upakaraṇa*) sufficient to last for four months". Nārada's advice partly agrees with Kauṭilya's direction to the Director of Trade (2.16.11-13). "He should encourage the import of goods produced in foreign lands by [allowing] concessions. And to those [who bring such goods] in ships or caravans, he should grant exemptions [from taxes] that would enable a profit [to be made by them]. And no law-suit in money matters [should be allowed] against foreign traders, except as are members [of native concerns] and [their] associates".

Providing the craftsmen with capital and implements was intended for supporting the industry. It is possible that here is the origin of the state-owned factories described by Kauṭilya. The *gomins* (cow-

herds) have already been described above. They also had to pay tax, and the king is advised to look after their interest and support them by all possible means (12.88.35). Regarding the mode of taxation, it is stated: 'Merchants should be made to pay taxes after taking into consideration the sale price, the purchase price, transport charges, cost of barley-meal, rice and other eatables like pulses, vegetables, *ghī* etc. [for laboures] and the charges paid to the guards for affording protection during transit. 'Craftsmen' should be made to pay taxes after taking into consideration their utpattim, that is, their mode of production [including the cost of raw materials], *dāna-vṛtti*, that is, their method of distribution of income [including wages paid to labourers] *sil-pam*, that is, quality of the produced goods, and *śílpa-pratikarān*, that is, taxes per piece of goods produced or taxes in kind.

Several parallel passages from the *Mbh* and Manu have been quoted above. Which of these two is the borrower has engaged the attention of scholars for a long time. Discussion of this problem here will be a digression, hence it is being avoided. Still it play be suggested that many floating verses were held to be authoritative, which were incorporated both in the *Mbh* and Manu. Kauṭilya's regulations do not contain the provisions of Manu and the *Mbh*. However, he lays down (4.2.36): 'In the case of commodities coming from a distance, the expert in fixing prices (Director of Trade) shall fix the price after calculating the investment, the production of goods [*i.e.* the quality and the quantity], duty [in transit] interest, rent, and other expenses'.

Thus it will be evident, that taxation was not intended to be a general impost neither was it an *ad valorem* duty; efforts were made to ascertain the profit which alone was taxable. It has to be concluded that if the sale of his products did not yield a profit, the merchant did not have to pay any tax. It was more in the nature of income or profit tax than excise or import duty. The provision regarding the supply of capital and implements to craftsmen (2.5. 107) is peculiar to the *Mbh*. Evidently the measure recommended by Nārada would have encouraged production, and may have

developed into the idea of the state owned factories described by Kauṭilya. It may be recalled that Yudhiṣṭhira was advised by Nārada also to grant loans on easy terms to cultivators. Probably the same kind of assistance to craftsmen was intended. Such loans would have rendered the peasants and the craftsmen free from having to rely on the usurers.

Almost the first act of the Pāṇḍavas on receiving their patrimony from Dhṛtarāṣṭra was to 'measure' out adequate land for their new capital (1.199.29). Many traders from different countries speaking many languages (1.199.37) as well as all kinds of craftsman (*sarva-śilpa-vidaḥ*) came to the new city and settled there (1.199.38). Evidently the Pāṇḍavas took adequate measures to attract trade and industry to their new capital, and if it can be identified with a place near Delhi, then a part of the commerce that flowed along the Ganges may be presumed to have been diverted through the Yamunā. If Hastināpura was located near Meerut, then it possibly lost part of its commercial importance due to the rise of the new Pāṇḍava capital of Indraprastha. Even the king's pleasure was not without economic significance. Explaining the real import of hunting, Rāmacandra said to Lakṣmaṇa: 'Kings go for hunting expeditions for meat and for pleasure. But duo to this exertion they come across much wealth, various metals, gems and gold. Wealth thus acquired augments the treasury' (3.41.29-31). No avenue for gain was neglected by the kings, and one may be sure that their subjects followed the same principle.

Merchants' Organization

The epics speak of several organized groups of which the most interesting is the *vadhu-nāṭaka-sangha* of the *Ram* (1.5.12), explained as theatrical groups composed entirely of women. Ayodhyā is said to have several such groups. The *Ram*, mentions both nigama and śreṇi. In 2.13.2, it is related that the *amātya* (ministers), *bala-mukhyāḥ* (commanders of the army) and *mukhyā ye nigamasya ca* (heads of *nigamas*) came to attend Rāmacandra's *abhiṣeka*. This statement is practically repeated a few verses later (2.13.19). While

describing the arrangements made for Rāmacandra's reception at Ayodhyā after the war, it is said (6.115.13) that Bharata was accompanied with *brāhmaṇa-mukhyas*, and *śreni-mukhyas* with the *nigamas*. The words *śreṇi* and *nigama* are synonymous, both meaning 'guild'. Here it is meant that the 'heads of the guilds were present with the members of the guild'. During Rāmacandra's coronation, scented water was poured on him by the persons noted below in the following order: *ṛtvij brāhmaṇas*, sixteen maidens, ministers, soldiers, and *nigamas*. *Naigamas* are again mentioned (7.82.17-18) along with general public (*bāla-vṛddhamś*=ca), *brāhmaṇas*, clever artisans (*karmāntikāś=ca kuśalān*) and learned craftsmen (*śilpinas = ca supaṇḍitān*).

After Rāmacandra's departure for the forest, Daśaratha died, and Bharata returned to Ayodhyā from Kekaya. A fortnight after his return, he was told that, having collected all the parapharnelia for anointing him his *svajana* (relatives, ministers etc.) and the *śreṇis* were waiting for him (2.73.4). Bharata refused to be crowned, and left with a huge retinue and citizens for the forest to induce Rāmacandra to return. There Vasiṣṭha addressing Rāmacandra said: "Here is your *pariṣads* (councillors), *śreṇis* and *nṛpas* (chieftains)'. (2.103.5). This grouping indicates that the śreṇis had a distinct political status. In the *Mbh* the *śreṇis* do not seem to have been given the same importance as in the *Ram*. However, their importance can be deduced from one episode. After Duryodhana and the Kauravas were captured by the *gandharva* Citrasena, they were released by the exiled Pāṇḍavas. But Duryodhana felt so humiliated that he decided to give up his throne, and while declaring his decision to his brothers said: 'What reply shall I give when asked by Bhīṣma, Droṇa, Kṛpa, Aśvatthāman, Vidura, Sañjaya, Bāhlīka, son of Somadatta, other elderly persons, *brāhmaṇas, śreṇi-mūkhyas* and, others'. (3.238.14-15).

Duryodhana's reference to the *śreṇi-mukhyas* shows that they had some importance, but the absence of any other reference to them indicate a general decline in their position. This may have been due to the policy adopted by the kings during the age of the

Mbh. As Bhīṣma advised Yudhiṣṭhira: 'Protect the ministers from the intrigues [*upajāpa*, lit. acts of rebellion cf. Manu, 9.275] of *śreṇi-mukhyas*, and from supplications by friends, [the *śreṇi-mukhyas*] should neither be permitted to quarrel among themselves [bhedo] nor be allowed to present a united front.' *Vallabha* means a favourite, but in the present context it seems to indicate, a friend of the *śreṇi-mukhyas*, for the Ram (2.98.71) speaks of *naigama-yūtha-vallabhāḥ* (friends of the bands of *naigamas*). Probably the king is being asked to pay no heed to the entreaties of the friends of the rebellious or intriguing *śreṇi-mukhyas*, when the ministers recommended their punishment. One can, therefore, be certain that *nigama* in the epic meant an association of traders, and craftsmen.

The *Mitākṣarā* on Yājñvalkya (1.361) explains *śreṇi* as a guild of betel-sellers. But Yājñavalkya mentions other guilds such as *pūgas*, *gaṇas* etc. which are not mentioned in the epics. However, the *Mitākṣarā* on Yājñavalkya 2.30 explains that *pūga* is an association of different castes and different avocations that stay in one locality, while the *śreṇi* is a group of people of different castes, that subsist by the occupation of one caste, and give *heḍāvukas* (horse-*dealers*), *tāmbulikas* (betel-leaf sellers or growers), *kuvindas* (weavers), and *carmakāras* (leather-workers, shoe-makers) as examples of *śreṇis*. These examples, however, are of craft-guilds, but the *Vyavahāra-matrka* of Jimutavāhana states that the *śreṇi* is an association of artisans or traders. Hence, as stated above, it is evident that, *śreṇi* and *nigama* in the epics meant any association of traders and craftsmen, and that the later subdivision into *pūga* etc., were unknown in the epic age. Manu mentioned *pāṣaṇḍa-gaṇa-dharma* in 1.118, and *śreṇi-dharma* in 8.41. Now, Kātyāyana has explained *sangha* as 'a body of Bauddhas or Jainas', and by analogy, *pāsaṇda-gaṇa* may mean 'a body of heretics'. But Medhātithi has explained *gaṇa* as 'a union of *vaṇik-kāru-kuśīlavas* (traders, artisans, and actors) while Kulluka merely says *vaṇikādinām* samūhaḥ (union of traders etc.). But commenting on Manu 8.2, Medhātithi explains *śreṇi* as 'traders etc. who follow the same trade' and *gaṇa* as builders of dwellings and *maṭhas* and *brāhmaṇas* residing in *maṭhas*. Commenting on

Manu, 8.41, Medhātithi explains *śreṇi* as *eka-kāryāpannā* (those engaged in the same trade or professions) and as examples cites *vaṇik-kāru-kusīda-cāturik-ādayaḥ* (traders, artisans, money-lenders, charioters etc.). Kulluka, in the same context, explains *śreṇi* as *vaṇikādi* (traders etc.). It is evident, however, that even if Manu had used *gaṇa* in 1.118 in the sense as understood by Medhātithi, there was hardly any difference between *gaṇa* and *śreṇi*, and that the terms indicated unions or guilds of craftsmen or merchants.

The words *śreṇi* and *nigama* have been used in the epics, like *gaṇa* and *śreṇi* of Manu, in a broad sense. The head of each *śreṇi* was called a *śreṇi-mukhya*, and apparently they enjoyed some status. It is, however, likely that due to the policy advocated by the *Mbh* (12.138.63) as explained above, a division was deliberately created among various unions or guilds, and different guilds were given different names as mentioned by Yājñavalkya, Kātyāyana and others. Thus instead of several *śreṇis*, there arose, *pūgas*, *vrātas*, *gaṇas*, etc. which would have had the effect of destroying the cohesion of the *śreṇi-mukhyas*, and thereby lower their status and weaken them.

The *Mbh* (12.37.14), however, declares: 'There can be no penance for one who has given up the duty of his caste, *śreṇi*, locality, and family'.) The dharma of *jāti* etc. here has a wide connotation. Manu (8.41) says: 'The king should establish law [*dharma*] after ascertaining the customs [*dharma*] of caste, *janapada* (country), *śreṇi* and *kula* [family]. Adhivāsa of *Mbh* (12.37.14) which we have rendered as 'locality' seems to stand for *janapada* of Manu. Gautama (11.21) says: 'Cultivators, traders, herdsmen, money-lenders and artisans have authority to lay down regulations for their respective classes'.

Yājñavalkya (1.30) and Nārada (1.7) state that law-suits may be decided by village-councils (kulāni) guilds (śreṇi), assemblies (puga in Yājñavalkya and *gaṇa* in Nārada), the judges appointed by the king and by the king himself, in succeeding scale of superiority. According to Bṛhaspati, 'the heads of *kula* (families), *śreṇī* (guilds), gaṇas and the inhabitants of towns (*pura*) and forts (*durga*) may pronounce the two punishments of reprimand and condemnation

against wrong-doers and may also excommunicate them, and the punishment and favours declared by them according to rules should be approved by the king, since such power is regarded by the sages as delegated, to them'. Elsewhere Bṛhaspati states 'that the *kulas*, *śreṇis* and *gaṇas* that are well-known to the king may decide the disputes of litigants except those that fall under sāhasa (crime involving force) and that it was only the king who could carry out the order for fines or corporal punishments, *i.e.* the arbitration courts could only decide disputes not involving *sāhasa* and they had no power to execute their decrees about fines and corporal punishments, but that their decisions had to be filed with the king, who, if he did not disapprove of them, put them into execution'. Bṛhaspati further states that 'in disputes among husbandmen, craftsmen (carpenters and the like), artisans (like painters), money-tenders, guilds, dancers, sectarians (like Pāśupatas) and criminal tribes the decision should be made with the help of those who understand that conventions made by them and their usages'.

Whether these regulations had the force of law in the epic age may be questioned. But the statement in the *Mbh* (12.37.14) illustrates the rigour of *śreṇi-dharma* of that age, which taken together with Gautama (11.21) and Manu (8.41) positively indicate the mandatory nature of the customs obtaining in a guild. The traditions established in the epic age shall have been accepted as customary law by later Dharmaśāstra writers.

Markets

In the Mbh (13.24.22) Bhīsma tells Yudhiṣṭhira: (O king, [a *brāhmaṇa* who is] a debtor, an usurer, or who (makes undue profit] by buying low and selling high should not be invited). Manu (3.180-81) also forbids one to make gifts to *brāhmaṇas* who are engaged in trade or usury as well as to other delinquents. From these it appears that though the *brāhmaṇas* may have been kept off from these lucrative ventures, others took full advantage of a rising market and made investments whenever it appeared profitable. As Marx has said: 'To buy cheap in order to sell dear is the rule of

trade', and the literal meaning of *prāṇi-vikraya-vṛtti* is 'buying low and selling high'. Bhīmasena put it forcefully: ('A sale [or investment] is useless unless it is profitable. Otherwise it is like scratching an ass.')

Conditions were favourable for commercial operations. In any well-ordered kingdom, the merchants were assured of protection, and they flocked there from all countries. The standard description of a prosperous city is that merchants from many countries lived there. This is found in the description of Ayodhyā (1.5.14), as well as in the description of Indraprastha, and it is added that they spoke all languages. (1.199.37). This is a sign of an international market; but in those days when India was divided into many kingdoms, international trade primarily meant all-India trade, though references to sea voyages indicate that trade with countries outside the subcontinent was also contemplated. Vidura is stated to have once spoken to the Panda vas in the Mleccha language (1.135.6). Mleccha is a vague term, and can denote any foreigner, but it is apparent that even princes picked up foreign languages, possibly for the same reason which led the Europeans to learn the languages of the countries which they tried to exploit.

Traders from various countries speaking in different languages is described in the *Kuvalayamālā*, a Jaina text written in AD 779. The scene is set in Sopāraka, modern Sopāra near Bombay, and the work notes speakers from Magadha, Kīra, Dakka (Punjab), Sindh, Marwar, Gurjara, Malwa, Lāṭa, Karṇāṭaka, Tāie (Tājika, Arab), Kosala, Mahārastra, Andhra, Khasas, Pārasas (Persians), and Barbaras. There were also the Gollas who were most probably the same as *gomins* mentioned above.

The *Kuvalayamālā* also states, that there was in Sopāra a *vāṇiya-melī* which has been rendered as "Traders' Association" or "Club", where the traders from other parts of the country narrated their experience, and received a farewell symbolized by the gifts of *gandha*, *mālya*, and *tāmbula*. Foreign traders reported their sales and purchase to the 'Association'. It may be looking too far into the future, and rather presumptuous to expect that trade was as

much organized in the epic age as it was at the end of the 8th century AD. But the indications are that posterity owed not a little to the past generations, and, for all we know, the mechanism of the trade organizations may have been quite developed in the ancient age described by the epics.

The *Ram* while describing the foundation of Takṣasilā and Puṣkalāvata by Bharata, states that both the cities were full of gardens, vehicles, and 'divided into many markets' (*suvibhakt-āntarāpane* 7.91.12). Describing the city by the demon Maya, Mbh (8.24.17). says that it was *guṇa-prasava-sambādham*, which has been explained as 'full of the produce of all the *guṇas*, viz., *saliva*, *rajaḥ* and *tamo*, which means that the town catered for the needs of all kinds of people. Nīlakaṇṭha explains *vipaṇī* as *paṇya-vīthikā* (road or row of shops, a market row), and *āpaṇa as hoṭṭa* (market) and *paṇyāṇi* as *vikraya-dravyāni* (merchandise for sale). These were one might say, the insignia of a prosperous city. Even an army on march was accompanied with shops (*Ram*, 7.56.3; *Mbh* 5.149.53, 5.196.18-19). With the growth of population even sacred places became cities (*firthāni nagarāyante*, 9.36.41).

Imports

Of the articles of import, horses seem to have been one of the most important items. It is also likely that the epics being concerned mainly with warfare, greater prominence was given to horses than to other articles. The *Ram* (1.6.20) speaks of horses from Kāmboja, Bāhlīka, Vanāyu, and from a river, by which probably Sindhu or Indus is meant. From the *Mbh* it is found that horses came from various countries, namely, Kāmboja, Bāhlīka, Sindhu, Vanāyu, Mahī, Araṭṭa, and Kulūta; there were also horses bred near river, and horses from forests and mountains. The *Mbh* seems to distinguish between *ājāneya* (well-bred) horses from mountain horses (*paravtiya*) and those bred near rivers (*nadīya*) and Nīlkaṇṭha has explained these terms in detail (7.79.8). Nīkaṇṭha has also described the Saindhava and the Bāhlīka horses, and compared their respective merits. Of the countries mentioned above, Kāmboja was Afghanistan,

and Bāhlīka was the country beyond Sutlej and the Indus (8.30.10-11). The Vanāyu horses also mentioned in the *Raghuvamśam* 5.73 has been explained as Persian horses by Mallinātha, but according to the Vācaspatya, Vanāyu meant Arabia. Kulūta was the Kulu subdivision in the Kangra valley.

It is interesting to note that according to Kauṭilya (2.30.29) the best horse came "from Kāmboja, Sindhu, Araṭṭa and Vanāyu, the middling from Bāhlīka, Pāpeya, Sauvīra and Titala', while the rest were inferior. The *Mbh* (6.86.4) mentions *tittirija* horses, which cannot be identified, hence the question has arisen whether it could have referred to Kauṭilya's Titala hourses. The *Ram* (1.6.21) mentions elephants from the Vindhyas and the Himalayas. The *Mbh* mentions elephants from Kalinga (7.68.32) and Aparānta (8.27.9). Assam was also famous for elephants, for the elephant of Bhagadatta, king of Prāgjyotiṣa, is very highly spoken of (7.25.19 ff. and 7.26. 3.8).

An idea of the typical products of the various countries can be obtained from Duryodhana's description of the gifts received by Yudhiṣṭhira in his *Rājasūya* ceremony. Woolen clothes, cloth made of cat's hair and embroidered with golden threads, cloaks, skins of antelopes, horses, she-camels, and mules came from Kāmboja. From Broach came skins of *ranku* deer. Various tribes from the trans-Indus region living near the sea sent sheep, cows, gold, asses, camels, honey made from fruits, and varieties of blankets. The king of Prāgjyotiṣa sent many horses. Some other tribes including the Romakas brought asses which could travel great distance. The Cīnas, Hūṇas, Śakas, Uḍras, and mountain tribes also brought asses. From Bāhlīka and Cīna also came woolens made of the hairs of *ranku* deer, and pure silk. From Aparānta and other western countries came weapons (2.47.1-24).

It may be stated here that from the *Mbh* (2.23.19) it appears that Cīna was in Assam. Some tribes brought mules, and honey from the Himalayas. Some other tribes brought sandal, aguru (fragrant aloe), skins, jewels, incense, various beautiful objects, and foreign animals and birds (2.48.1-12). It emerges from the above list that the main articles of import were animals (horses, asses, and

mules), woollens, incense, and gold and precious stones. It is important to note that the Cīna silk was reputed not to contain any cotton or wool (*vastram akārpāsam āvikam*), but was very polished and soft. Apparently Cīna in Assam was the only place in India where silk was produced in those days. Woolen goods came mostly from outside. Blankets were put to various uses, and it is stated that Duryodhana erected near the Ganges 'houses' that is, tents made of cloth and blankets (*caila-kambala-veśmāni* 1.119.29). Possibly here *kambala* means a carpet or a rug spread on the floor.

Mules are spoken of at many places, and it is said that at the time of Arjuna's marriage with Subhadrā, Kṛṣṇa presented him with black, and white mules (1.213.43). These animals were used principally for drawing carts. Carts drawn by oxen, asses, and camels carried Balarāma's baggage (9.34.19). A mule-drawn carriage seems to have been highly prized, for Bhīṣma says that a person, who presents a *brāhmaṇa* with a pair of shoes, obtains, in the next birth, a bright chariot drawn by mules (13.65.3). It may be added here that bulls were used from the Vedic times to draw the plough, and in the Mbh (13.65.49) Bhīsma forbids Yudhiṣṭhira to give bulls to a Kīnaṣa, which has been explained above.

There were aslo chariots for sports (*krīḍā-ratha*), and chariots for war (*sāngrāmika-ratha*, 13.53.27). These were presumably drawn by horses. It may be stated here that India imported horses practically throughout her history. Regarding the other imported commodities, it is found in the *Periplus of the Erythraean Sea*, written about the first century AD., that India still imported various kinds of textiles and metals, though the variety of imports had naturally multiplied. Secondly, the *Mbh* does not give an exhaustive list of imports as the *Periplus* does.

Transport

Travelling in those days may not have been very risky for pilgrims and others. But there were chances of merchants being robbed, and as we have seen, the *Mbh* 12.88.11 and Manu 7.127 while calculating cost takes into account not only the transport

charges (*adhvanam*) but cost of protection (yogakṣema) as well. This protection was afforded by caravans (*sārtha*) under a leader (*sārtha-vāha*). This was an organized trade as known from other sources. In the *Mbh*, a description of a caravan is found in the Nalopiakhyāna of the *Vana-parvan*. After Nala had left Damayantī, the forlorn queen roamed hither and thither in search of her husband. As Monier Williams has translated it:

'Many a tree she stood and gazed on,
many a river passed she o'er:
Passed she many a pleasant mountain,
many a wild deer, many a bird:
Many a hill and many a cavern,
many a bright and wondrous stream,
Saw king Bhīma's wandering daughter
as she sought her husband lost.
Long she roamed her weary journey.

The caravan had evidently travelled across perilous route under their leader who is called *sārtha-vāha* (3.61.117, 121,124), and in 3.61.121 he is described as *sārthasya mahataḥ prabhuḥ*, while in the next verse he describes himself as *ahcam sārthasya netā* ('I am the leader of the caravan'). This indicates that the *sārtha-vāha* was the owner of an organization which provided transport facilities including guards. It is known from Gupta inscriptions, that the *sārtha-vāhas* had an eminent status, and the chief amongst them *played* an important civic role.

The particular caravan which Damayantī joined was going to Cedi. At night, however, a band of wild elephants attacked the sleeping caravan and killed most of the merchants. But Damayantī managed to reach Cedi accompanied with a few *brāhmaṇas* learned in the Vedas (3.62.17). It is not clear as to what the brāhmaṇas were doing in the caravan whose professed aim was profit (*lābha*, 3.61.125). The merchants who joined a caravan were called sārthikas (3.62.8), and in 12.150.5, they are called sārthika vaṇijaḥ, and it is indicated that they also had to take shelter in forests.

The *Ram* (2.76.8) refers to merchants who brought jewels from overseas country (*samudra*) and further on (4.16.22) refers to an overburdened ship tossing in the sea. In the *Mbh* there are several references to sea-voyages undertaken by merchants, but it appears that it was considered hazardous. When the Pāṇḍava soldiers began to run away, being attacked by Bhagadatta's elephants, they are compared with "merchants in the stormy sea' (7.25.56).

After the death of Abhimanyu, Arjuna is said to have wept as a merchant whose ship has foundered (*evam vilapya vahudhā bhinna-poto vaṇig yathā, 7.50.44*). At a critical moment in the war, Karṇa is described as the island, which provides refuge to the sailors whose boat has sunk (8.55.71-72). The Kaurava soldiers overwhelmed by Arjuna's assault are compared to a great ship struck by a furious gale in the ocean 8.58.14. When Dhṛṣṭadyumna was saved from Kaṛṇa by Draupadī's sons and taken on their chariot, Dhṛṣṭadyumna is compared to a merchant whose ship has sunk but is safely taken aboard another vessel (8.60.22).

After Karṇa's death, Kṛpācārya, while advising Duryodhana to come to terms with the Pāṇḍavas said: 'O king, Arjuna is making your soldiers shake [as impetuously as] ships are lashed by wind to roll and pitch violently in the ocean'. (9.3.29). Describing the condition of the Kaurava soldiers after Śalya's death, Sañjaya compares them with merchants whose ship has sunk in ocean, but who wishes to cross it and reach a place of safety (9.18.2).

An example of misfortune is the fate of the merchant who, having crossed the sea and amassed a fortune, sinks in a small river due to his negligence. 10.10.23. These allusions clearly indicate that sea-voyage was not only known but also undertaken, though it was considered to be extremely risky. It is also probable that the *Mbh* was composed in north India, far away from sea, and its author or authors, like most men who have never seen the sea, considered it to be full of peril. It is also true that a voyage in those days, and long after, was dangerous, and only the most intense desire for profit would induce men to undertake a voyage. The passages quoted above also show that only the merchants undertook

a sea voyage. Going to sea was linked with earning a fortune; even a visit to the sea shore was expected to yield some money (12.165.10). Elsewhere it is said: 'Just as an overseas merchant makes profit in proportion to his investment, so in the sea of life a person attains progress according to his action and knowledge'.

There was some social stigma attached to a *brāhmaṇa* going overseas. For it is said: 'A brāhmaṇa [who acts as an] usher in a court of law, a temple-priest, an astrologer, and a village priest are caṇdālas [and so is] a *mahā-pathika* the fifth.' (12.77.8). *Mahā-pathika* has been explained by commentators as '*dvīpāntara vaṇija* that is, a merchant who goes overseas. This is the earliest known prohibition of sea voyage. At a later age, this dictum was completely ignored and learned *brāhmaṇas* freely went to South-East Asian countries and spread there the message of Indian culture. But later again a reaction set in, and not only the *brāhmaṇas*, but even the *vaiśyas* refused to venture outside India. This total abstention was not intended by the *Mbh*, but it may have supplied the original impetus towards the retrograde step.

In the *Mbh* the story of *Ram* is briefly related. In course of the story, it is said that when it came to the crossing of the sea with his army, Rāmacandra said to Sugrīva: 'We do not have sufficient vessels to cross the sea, and how can a man like me cause loss to the merchants [by comandeering their boats]' (3.267.28). From this statement it seems that the state in those days did not possess any ship, but the merchants owned them, probably in considerable number. There could have been brisk coastal trade, with Ceylon, and with the countries in the Persian Gulf region. Manu does not forbid eating fish, and the epics show that the fish was an article of food even to the *brāhmaṇas*. The earliest sea-farers, therefore, were probably the coastal fishermen, who, even today, venture miles into the Arabian Sea and the Bay of Bengal in their tiny crafts.

However, the epics merely allude to sea-voyages, particularly its attendant dangers. It docs not give a single story of a voyage such as are found in the *Jātakas* or in the *Bṛhatkathā*. There is also no reference to a navy. Taking together all these considerations, it

appears that sea voyage was at its early stage during the epic age, and ships carried only a small part of its trade. The main export route was through Kāmboja, that is, Afghanistan. It is possible that all the objects which were labelled 'Kāmboja' were not really produced in that country, but came through it. The main overland route to India lay through Afghanistan, so all imports coming by the overland route had to come through Afghanistan and usually the Khyber or the Bolan Pass. During the epic age, and long afterwards, these were Hindu territories and as much a part of India as Pakistan and Bangladesh were before 1947.

Internal Trade

In the *Mbh* 12.69.28, Bhīṣma says ao Yudhiṣṭhira: 'The king should have ministers or trusted officials [to collect the taxes from] mines, salt, ferry (freight) and elephant forests'. It is evident therefore, that the mines, salt trade, ferry boats, and elephants were handled by private traders. According to Kauṭilya, all mines were state property, but the state was not to work all of them. Kauṭilya's advice was that a light mine should be worked directly by the state and "a mine that is burdensome in point of expense or working' should be leased out' (2.12.22). But as regards the salt-mines Kauṭilya's intention was to lease them out on a profit-sharing basis (2.12.28).

Kauṭilya lay down that 'the Controller of Shipping should look after activities concerning sea voyages and ferries at the mouth of rivers, as well as ferries over natural lakes, artificial lakes and rivers.... Traders shall pay a part (of the goods) as duty.... He [Controller of Shipping] should demand *śulka* [*duty*] from ships sailing on sea when they come within the domain.... *Brāhmaṇas* wandering monks, children, old persons, sick persons, carriers of royal edicts, and pregnant women should cross with a sealed pass stamped with the seal of the Controller of Shipping (2.28.1, 4, 11 and 18).

It is evident that in Kauṭilya's time sea-borne trade had become common, but, as stated above, conditions were different in the age

of the epics. Hence *śulka* in the *Mbh* (12.69.28) should be taken to mean 'ferry dues', which was the regular meaning of the term. Regarding the persons exempted from paying ferry dues, Manu (8.407) also says that 'women with two months' pregnancy, wandering monks, *brāhmaṇas* and *brahmacārins* will not have to pay ferry dues." This rule may be expected to have operated in the epic age. From Kauṭilya 231.1 and 2.31.8 it appears that the elephant-forests were guarded by royal officers and they captured the wild elephants. Here again the Mbh differs from Kauṭilya, and allows the king only a duty on the captured elephants.

Industry

Trade and commerce depended to a large extent on the industrial produce. The relation between trade and industry has been considered above, and here only the industries mentioned in the epics will be noted. The *Ram* does not specifically refer to any industry, but from the various descriptions, it is evident that there were flourishing industries, particularly in textiles and metals. In the *Mbh* the metal industry is referred to several times. *Ayasa* (iron) is mentioned many times, and *kṛṣṇāyasa* more than once (5.133.1 etc.). But as these words are used metaphorically, it is not possible to be certain that any distinction was intended, specially when it is remembered that adjectives are often added to suit the exigencies of metre. However, it may be pointed out that ayas is mentioned in the Vedic literature, but it seems to mean both bronze and iron, while iron was called *kārṣṇāyasa* (black-metal) and copper *lohāyasa or lohitāyasa*. In the Mbh, however, ayasa means iron, and the use of the word *tāmra* for copper is also found. The *kāmsyāyas tanutrāṛa* (armour made of bell-metal) is mentioned in the *Mbh* (7.31.17). The *Ram* (1.36.19) mentions *tāmra* and kāṛṣṇāyasa (iron).

While explaining polity, Bhīṣma says (12.120.19). 'In speaking about anything (*vaktavye*) one should be prudent and conceal one's thought. As a result (tathā) the other party, even if he be wise and like Bṛhaspati in intellect,—will give out (*vakṣyate*) the thoughts nearest to his heart and reveal his nature, like red hot iron (which

becomes black) when immersed in water (*kṛṣṇāyasan iv = odake*)'. The allusion here is definitely to a smithy. This is confirmed by a later verse which says: 'Know that a *jīva* takes shape inside the womb, as molten iron takes the shape of the mould into which it is poured.' (14.18.8). Thus it is evident that both forging and casting of metals were practised. Hot iron had another use. It is said: 'Mental distress inflames the body just as a hot ball of iron [heats] the [cool] water kept in a jar.' 3.3.25.

At present the electric immersion-heaters heat water exactly on this principle. It is quite likely that in ancient age, people used to get hot water for bath by dipping a red-hot iron ball in a bucket of water.

Among the articles of use made of iron were, angling hooks, 5.34.13, utensils made of both iron and copper 9.34.31 and it may be presumed that the handcuff 12.174.5, with which the king was advised to secure an atheist (nāstika) before turning him out of the country, was also made of iron. The *caṇḍālas* wore iron ornaments (*Ram* 1.57.11; Mbh 13.48.32, Manu, 10.52). Besides utensils, the chief use of iron was in producing weapons. The *Rigveda* (6.75.15) describes an arrow with a tip of iron (*yasyā ayo mukham*), but in the Mbh the entire arrow was made of iron (*adrisāra-maya* iṣu, 7.17.17, *kārṣṇāyasair=bāṇaih*, 7.28.4). Other weapons made of iron were śakti (spear, *sarvāyasīm śaktim*, 7.13.72; 7.13.72; *śaktim āyāsim*, 7.27.9) *sarmpārasavīm śaktim* (7.99.18) and *gadā* (club, *sarvāyasīm gadām*, 7.14.4). The qualification "entirety made of iron' raises the presumption that all the spears and clubs were not entirely of iron. Ordinary lances may have had a wooden shaft with an iron head, and the clubs may have been made of heavy wood with iron spikes. But arrows entirely made of iron seem to have become common, for in 9.13.1, *āyasa* is used to denote arrow, though in 7.93.3, we hear of *sarvāyasaḥ śarah*. But arrows with only iron heads had not gone out of use, and are referred to in 6.112.117-118.

Possibly ordinary arrows still had a wooden or reed shaft, and the all-iron arrows are mentioned to indicate the severity of the

fighting. The metal arrows were cleaned, that is polished or sharpened, by smiths (*karmāra-parimārjita*, 6.107.45; 6.109.18; 7.47.12; 7.114.40; 7.144.22). It is stated that Arjuna's arrows were stamped with his name (*nāmānkitāḥ*, 7.74.7). If this description is not entirely fanciful, it would indicate considerable technical skill. Use of oil as a lubricant or anti-corrosive seems lo be indicated by the term tailapāyin (7.130.27), which may mean an arrow or a sword.

Iron plates chased with gold were used to fasten the pole or the wooden frame of the carriage of the chariot with the yoke (7.122.78). A more gorgeous iron-plate used in a chariot is described in 7.42.5. Iron armour was extensively used, and mention is made of *lauhāni kavacāni* (4.57.4) *ayasmaya-varmāṇam* (7.43.10; 7.131.53) and of demascene steel (*śaik yāyasāni varmāṇi*, 7.95.35). Armour was also made of bell-metal: *varmāṇi kāmsyāni* (7.95.35) and *kāmsyāsatanutrāna* (8.59.26) *kāmsya-kavaca* (7.150.10) *kāmsya-varma* (7.150.24). The property of loadstone or magnet was known and it is said: 'Just as an inert [piece of] iron moves towards a magnet, so does the natural instincts of a man [like nescience, desire, etc.] are attracted [towards the jĩva or puruṣa. 12.204.3.

It is, however, not possible to say as to whether the magnet was put to any useful purpose. The use of files for cutting iron also seems to have been known (12.205.27). An iron hammer or forge hammer (ayoghana) is referred to in 7.25.58. There were machines for throwing iron balls. These catapults are referred to as *ayah-kaṇapa* (*Mbh* 1.218.24), and propulsion of objects by a machine (*yantra-nirmukta*) is referred to in 7.67.68 and 7.68.65. Machines for throwing stones and arrows are also mentioned in the *Ram* (6.3.11): *iṣupala-yanrāni*, which were placed on the ramparts of Lanka. It seems that the yantras which were erected on buildings of Lanka (6.3.15) served the same purpose. The city of Ayodhyā was similarly provided for (sarm-yantrā-yudhavatim, 1.5.10). In the Mbh's version of Ram, Rāvaṇa's city is said to have been provided with karṇāṭṭa-yantra durdharṣā (3.268.4 and 29-30).

The śataghnī is mentioned as a weapon in the *Ram* (1.5.11) and in the *Mbh* many times. Indraprastha, the Pāṇḍava capital, was guarded with *śataghnīs* and other machines (*śataghnibhir =:yantrajalaiś = ca śobhitam*, 1.199.33), and this was also Bhīṣma's advice (12.69.43). But it appears that the *śataghni* could be discharged by one man, for, it is said: 'The king of Sindhu [hurled] *paṭṭiśa* (a kind of spear) and *tomara* (a javelin). Kṛpa, the *śataghnī* and Śalya [discharged] an arrow.' (6.109.35); but Bhīmasena destroyed the *śataghnī* with nine arrows (6 107.38). The śataghnī is mentioned along with many other weapons in 7.113.20 and 7.154.46, one of which could project an iron ball, and later the *śataghnī* is said to throw fire (*hutāśadaḥ*, 7.170.19). Arjuna's arrows are compared with *musala* (mace), *parigha* (an iron club studed with iron), *śataghnī* and thunder (8.21.32). When the Pāṇḍavas attacked Śalya. it is said that Nakula hurled a *śakti* (spear), Sahadeva a *gadā* (club), and Yudhiṣṭhira a *śataghnī* which Śalya cut down with two arrows (9.12.23-24). It is difficult to say what the *śataghnī* was, and though it is sometimes held to have been a fire-arm the commentators have explained it as a huge stone studded with iron spikes. It was possibly some simple contrivance like a sling or a catapult, which could be used in battle, and was also used for defensive purposes.

The only use of a machine for peaceful use was the one made by a carpenter and used by him (12.34.10). The epics are mainly concerned with war, so the descriptions of weapons predominate. Still it is difficult not to conclude that the metal industry was mainly, or at least in a great part, engaged in the production of weapons. In that case it may be postulated that the production of weapons reached its peak just before the Bhārata war followed by a 'slump'. Except for the *Aśvamedha* sacrifice, performed just after the war, no other war is reported during the thirty-six years of Yudhiṣṭhira's region. This "era of peace" could have impoverished the craftsmen engaged in the production of weapons, which would have adversely affected the social status of the metal workers. But details are not available.

Leather industry was also fairly developed. The *Mbh* (13.97 to 98) describes the invention of shoe and umbrella to protect the sage Jamadagni's wife Reṇukā. The story seems to indicate that these aids to human comfort were first invented to protect the ladies. But men soon took advantage of the new invention, and Bhīṣma relates to Yudhiṣṭhira the great merits acquired by those who made gifts of umbrella and shoes to a *brāhmaṇa* (13.98.17-21). Leather must have been mainly used in the manufacture of shoes, but it was put to other uses also. Nakula kept his weapons in a bag made of goat or sheep skin (*pañca-nakhe kośe*, 4.38.57) while Sahadeva sheathed his sword in a scabbard made of cow hide (*gavya-kośe*, 4.38.58). Water-bottles or water bags were called *dṛti* (12.232.14). The word also occurs in Manu (2.99) where Medhātithi explains it as bags made of goat's skin etc. for carrying water.' There were also ropes made of leather (*śata-carma*, *Mbh*, 1.26.19). It is interesting to note that the *Bṛhatkathā* describes mountain climbing with the aid of ropes made of skin. In the *Mbh* also the rope made of skin is given as an example of great strength. Usually, it seems that ropes were made of hemp as well as of bark of trees (*śaṇa-valka*) as is stated in the *Ram* (5.46.45; 5.56.129).

Money

The *Ram* mentions coins only a few times. It is said that Rāmacandra distributed among *brāhmaṇas trimśat-koṭī-hiraṇya* (thirty crores of *hiraṇya* 6.116.55), from which it is apparent that *hiraṇya* was a coin. When sending Śatrughna on an expedition, Rāmacandra gave him one million (*niyuta*) of suvarṇa hiraṇya (gold *hiraṇya*, 7.56.4). *Hiraṇya* also can mean gold, but as a coin it was evidently not always a gold coin. Actually in the *Ram* (1.73.5; 7.85.15) and in the *Mbh* (13.57.34), the word *hiraṇya* seems to have been used in the sense of silver. Therefore, *hiraṇna*, which is also mentioned in the *Mbh* (3.183.30) as a coin, appears to have been usually a silver coin but gold *hiraṇyas* were also issued. The *Ram* (2.64.18) mentions *rukmaniṣka*, that is, golden *niṣka*, as a coin. In the *Mbh* (2.30.51) *rukma* seems to have been used in the sense of a gold coin, rather than gold.

The confusion in terminology is due to the fact that it was the practice in the epic age to use—particularly while making a gift—both coined and uncoined gold. The *Mbh* mentions *kṛt-ākṛta kanaka* (1.213.46) and *kṛt-ākṛtam ca kanakam* (13.53.39), which has been explained by an anonymous commentator as ghaṭit-āghaṭitam kanakam (made or unmade gold) that is, coined or uncoined gold. But the coin more frequently mentioned in the *Mbh* is the *niṣka*, and. its connotation is even more confusing than that of *hiraṇya*. We have seen that in the *Ram*, *niṣka* is mentioned once, when it is qualified by *rukma* (gold). In the Mbh, the word niṣka is used at least 35 times, of which it is used (i) six times as gold, (ii) eleven times as gold ornaments, mostly necklace, (iii) nine times as coin, (iv) five times as a gold coin, (v) while four times the word is used in such a manner that it may mean either gold or coin.

The variations in the meaning of *niṣka* arose in the Vedic times. Gold was known as *niṣka*, and when it was coined, the coin was also known as *niṣka*: and *niṣka* also meant a gold ornament—particularly a necklace. *Niṣka* is used in the *Rigveda* and later Vedic literature denoting a gold ornament worn on the neck as is shown by the two epithets *niṣka-kaṇṭha* (*Aitareya Brāhmaṇa*, VIII. 22) and *niṣka-grīva* (*Rigveda*, V, 19.3, *Atharvaveda*, V, 17.14), meaning 'having a gold ornament on the neck'. The epithets *niṣka-kaṇthi* (8.27.5: 13.106.29) *niṣka-kaṇtha* (13. 106.33) are also as used in the *Mbh*. *Niṣka* was, however, or seems to have been, used even in the *Rigveda* as a coin (1.126.2), while in later Vedic literature its use to denote a coin is more abundant and clear.

Manu (8.284) mentions *niṣka* as a coin, but it is difficult to ascertain whether he means a gold or silver coin: Medhātithi explains *niṣka* as a 'measure of gold', but it is difficult to say how far he is correct. In the *Kumārasambhavam* (2.49), *niṣka* has been used to mean a gold necklace, while the *Bhāgavat* (4.3.6) uses the phrase *niṣka-kaṇṭhī*. But in a much later work, namely, the *Dvyāśrayakāvya* of Hemacandra, written in the 12th century AD, *niṣka* has been used to mean a gold coin, which, according to the commentator, weighed 108 *palas*. However, in his dictionary, Abhidhāna-cintāmaṇi

(Bhūmikhaṇda, 4.10), Hemacandra has given *niṣka* as a synonym of gold. Bhāskarācarya in his *Līlāvatī* states, that 20 *varāṭakas* make 1 *kākiṇī*, 4 *kākiṇīs* make 1 *paṇas* 16 *paṇas* make 1 *dramma*, and 16 *drammas* make 1 *niṣka*. It is evident, therefore, that from the Vedic times onwards, the word *niṣka* has been used in a dual sense: to indicate a coin and also as a measure of gold.

The epics do not mention any other coin, except that the *Mbh* mentions the *kākiṇī* once (12.282.16) as a coin of the smallest denomination, and Nīlakaṇṭha explains it as 20 *varāṭikās*. It may therefore be concluded, that the use of coins was known in the epic age, and that there was a gold coin. It is surprising, however, that Kauṭilya does not mention any gold coin. His regulation regarding coinage is (2.12.24): 'The Mint Master should cause to be minted silver coins with one-fourth part copper (and) containing as hardening alloy one *māṣa* (in weight) of one of the following, (viz.), iron, tin, lead, and antimony (of the denominations of) 1 *paṇa*, half *paṇa*, a quarter paṇa, and a one-eighth *paṇa*; (further) copper coins with one-quarter sustenance (of an alloy), (of the denominations of), one *māṣaka*, a half *māṣaka*, a *kākaṇī*, and a half *kākaṇī*. Most probably the *kākaṇī* mentioned in the *Mbh* (12.282.16) was a copper coin.

It may be concluded, therefore, that the authors of the epics knew of a gold and a copper coin. The silence of the epics regarding a silver coin does not preclude the possibility of its use, but it is remarkable that the epics seldom mention silver, white they mention gold frequently. This peculiarity may partly be due to the fact, that there is an element of exaggeration in the epics, and everything had to be of gold in order to be impressive. Alternatively, it is also possible that in those days gold was more abundant than silver.

It is quite possible that in the epic age minting was not a state monopoly, and the kings minted coins on special occasions. White commenting on *aṣṭāpada-padasthāne lakṣamadreva laksyate* (12.287.38), Nīlakaṇṭha says that the reference is to a gold *karṣāpaṇa* which had eight marks upon it. This description reminds one of the punch-marked coins. But Nīlakaṇṭha is a very late commentator, his

date having been assigned to AD 1650-1700. Therefore, it is difficult to say as to how far one can reply on Nīlakaṇṭha's authority to affirm the existence of punch-marked coins in the epic. On the other hand, the origin of the punch marked coins has not been satisfactorily explained, and it is quite possible that those were issued in the epic age, and as has been suggested, by the trade guilds. The kings in that case shall have issued only gold coins on ceremonial occasions.

The Rise of Merchanit's Capital

Men after all will be men, hence it is hardly surprising to come across a reference to illegal gain even in the *Rāma-rājya*, where Rāmacandra compares the scorching rays of the midday sun to the rudeness displayed by men, who have gained money by dishonest means (amārgeṇa, 3.7.8). In the *Mbh* (5.39.52), Vidura says that a *śrāddha* ceremony performed 'with illegally earned money' (*adharm-opārjitair-arthaiḥ*) produces no result. In the *Parāśara-gītā*, the sage praises the wealth acquired legally denounces illegaly earned money (Mbh 12.281.4-5, 12.283.24), but he points out that due to greed a man adopts illegal means to acquire wealth, presumably because his status in society depends on his affluence (12.284.7-9).

The type of people who made illegal gains is not specified; they could have been official's or traders. Here one is reminded of Kauṭilya's estimation of the moral of the officials. He says (2.9.32-33): 'Just as it is not possible not to taste honey or poison placed on the surface of the tongue, even so it is not possible for one dealing with the money of the king not to taste the money in however small a quantity. Just as fish moving inside water cannot be known when drinking water, even so officers appointed for carrying out works cannot be known when appropriating money.'

There is no means of knowing as to how far the conditions were different in the epic age, but if all the epic officials had been men of sterling character, it is evident that by the end of the 4th century BC, when Kauṭilya wrote, the tradition of honesty was lost. As for the traders, there is a distinct reference in the Mbh to their

using false weights (*kūṭa-mānair = vaṇijaḥ*, 1.58.22). This practice was known to Kauṭilya who lays down (4.2.20): 'As to difference in weight or measure, or difference in price or quality, for the weight or measurer who by a trick of the hand brings about (a difference to the extent of) one-eighth part in (an article) priced at one *paṇa*, the fine is two hundred (*paṇas*).

Manu deprecates trade because it does not discriminate between truth and falsehood (*saty-ānṛtam tu vāṇiyam*, 4.6); and here the commentators include money-lending within the meaning of *vāṇijya*. Manu's dictum may have induced Amara to give *saty-ānṛita* as a synonym for trade while he gives *antṛta* as a synonym for agriculture (*Amarakośa, Vaiśya-vargaḥ*, 4.8), possibly following a doubtful verse of the *Ram* (Vulgate edition, 7.74.17), not included in the Critical Edition). As noted above, the *Mbh* (13.24.22) denounces the *brāhmaṇa* who follows the *prāṇi-vikraya-vṛtti*, which means 'buying low and selling high'. Possibly Kauṭilya had this type of trade in mind when he laid down (4.2.19): 'For traders, who by conspiring together hold back wares or sell them at a high price, the fine is one thousand *paṇas*'. Kauṭilya (4.2.28) imposes a fine of 1000 *paṇas* on *kārus* (artisans) and *śilpins* (artists) who conspire either to bring about a deterioration in the quality of their products or increase prices too high. Kauṭilya (4.2.22) also provides for punishing the adulterators of grains, fats (oil and *ghī*), sugar, salt, perfumes and medicines.

The epics do not mention adulteration, but the negative evidence is hardly conclusive. Manu (8.203) inveighs against adulteration and imposes a fine for over-pricing (9.287). Yājñavalkya (2.245) practically repeats Kauṭilya 4.2.21, and while the latter imposed a fine of twelve *paṇas* on the adulterators, Yājñavalkya prescribed a fine of sixteen *paṇas*. Yājñavalkya (2.244) also imposes a fine on merchants using false weights, and curiously enough refers, like Kauṭilya, to the manipulation of one-eighth of the weight. Provisions on the same topic is found in later Dharmasastras.

It is difficult to say whether the business morality in ancient India was high or low; apparently the law-givers bad felt it necessary

to provide against dishonest traders and craftsmen. The provisions of the legal codes are not always conducive to a broad spectrum analysis. It is, however, evident that dishonest practices, which are supposed to be modern evils, were not unknown in ancient India, and one may hazard a guess on the basis of the tirade against ill-gotten wealth, that corrupt officials and dishonest traders were not as uncommon in the epic age as they are supposed to have been.

The importance of these evidences are that they indicate the operation of market economy in ancient India, though its area of efficient function is most likely to have been limited due to the lack of means of transport. The result was the restrictive and dishonest trade practices condemned by the ancient law-givers. To what extent the trade was controlled or regulated by the government can only be a matter of speculation. The little information that can be obtained about market conditions is from late inscriptions, which show the existence of an office for collecting śulka or tax on the commodities sold in a market. Presumably, the sellers were left free to manipulate the price so long as they paid their dues.

The caste system fostered the early growth of merchant capitalism in ancient India. The various guilds promoted its development The Dharmaśāstras protected the interest of the merchants by acknowledging the guild-regulations as part of the law of the land. All these factors combined to promote the growth of merchant's capital, which, due to peculiar Indian social conditions became a permanent social institution, and at a later stage in history hampered the growth of capitalist production. As Marx has said: the independent development of merchant's capital, is inversely proportional to the degree of development of capitalist production.

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Buddhist Economy: Concept and Practice

The Buddhist concept and practice of economy was based chiefly on a system of village communities of landowners, or what in Europe is known as peasant proprietorship. The Jātaka bears very clear testimony to this. There is no such clear testimony in it to isolated large estates, or to great feudatories, or to absolute lords of the soil holding such estates. In the monarchies, the king, though autocratic and actively governing, had a right to a tithe on raw produce, collected as a yearly tax; and only to this extent could he be considered the ultimate owner of the soil. All abandoned, all forest land the king might dispose of; and under this right was included the reversion to the crown of all property left intestate or 'ownerless' a custom which may or may not to a survival of an older feudalism. The sovereign was moreover entitled to 'milk money' a perquisite paid by the nation when an heir was born to him, and he could declare a general indemnity for prisoners at any festal occasion. Besides these privileges he could impose forced labour or *rājakāriya* on the people, but this may have been limited to the confines of his own estates. Thus the peasant proprietors enclose a deer-reserve for their king, that they might not be summoned to leave their tillage to beat up game for him.

A much more oppressive extent of *corvee* is predicted only of a state of civic decay. The tithe on produce was levied in kind, measured out either by the village syndic or headman (*gāma-bhojaka*), or by an official (a *mahāmatta*) at the barn doors, or by survey of the crops. Some of the rice and other grain may presumably have been told off for the special granaries kept filled for urgency, in war or famine, but Buddhist books make no clear reference to such an institution. The amount levied seems to have varied from 1/6 to 16/12 according to the decision of the ruling power or other circumstances. And the contributions raised at one or more *gāmas* (villages), rural or suburban, could be made over by a monarch (or by his chief queen) to anyone he wished to endow, *e.g.*, to a daughter on her marriage, a minister, a Brahman, a merchant, etc. Again, the king could remit the tithe to any person or group.

State Revenue

We have no direct evidence of such a tithe or other tax being levied on the commonwealth by any of the republics or oligarchies mentioned in the Buddhist canon, such as the Sākiyas, Koliyas, Licchavis, Mallas, etc. But that they did so raise the state revenue, in the case at least of the Sākiyas, seems to be attested by Asoka's inscription on the Lumbinī or Rumminder pillar. The tithe thus remitted on the occasion of Asoka's visit to the birthplace of the Buddha, must have been imposed by the Sākiyas at a date prior to the Mauryan hegemony. The Sākiyas and other republics are recorded as meeting for political business at their own mote-halls, and must inevitably have had a financial policy to discuss and carry out. That their enactments could to somewhat drastically paternal appears in the case of the Molla clansmen of Kusinārā, who imposed a fine of 500 (pieces) on anyone who 'went not forth to welcome the Blessed One' when he drew near, on his tour, to their town. These Mallas were also possessed of a mote-hall (*santhāgāra*) for parliamentary discussions—a class of buildings illustrated by the bas-relief of a celestial House of Lords on the Bhārhut Sttupa.

Land might, at least in the kingdom of Magadha, be given away, and in that of Kosala, be sold. In the former case, a Brāhman

landowner offers a thousand *karisas* of his estate as a gift; in the latter, a merchant (by a little sharp practice) entangles an unwilling noble in the sale of a park. And in the law-books we read that land might be let against a certain share of the produce. The holdings too in the arable land, called the *khetta*, of each village would be subject to redistribution and redivision among a family, as one generation succeeded another. It is not clear whether any member of a village community could give or sell any of the *khetta* to an outsider. It is just possible that the old tradition, expressed in the Brāhmanas when a piece of land was given as a sacrificial fee—'And the Earth said: Let no mortal give me away!—may have survived in the villages as a communal, anti-alienising feeling concerning any disintegration of the basis of their social and economic unity. We should anyway expect, from what is revealed in the early Buddhist books, to find such a sentiment upheld, less by the infrequent rural autocrat and his little kingdom of country-seat, tenant-farmers, and serfs, than by the preponderating groups of cultivators, each forming a *gāma*.

When, in the Jātaka legend, a king of Vedeha abandons the world as anchorite, he is described as renouncing both his capital, the city (*nagara*) of Mithilā, seven *yojanas* (in circumference), and his realm of sixteen thousand *gāmas*. It may sound incredible that a country owning such a wealth of 'villages' should contain but one town, and that so vast in extent, as to suggest inclusion not only of parks but of suburban *gāmas*. There was not, however, any such hard and fast line between *gāma* and *nigama* (small town) to warrant the exclusion, in this description, of some *gāmas* which may have amounted to *nigamas*. A similar vagueness holds between our 'town' and village'.

A *gāma* might apparently mean anything from a group of two or three houses to an indefinite number. It was the generic, inclusive term for an inhabited settlement, not possessing the fortifications of a *nagara* or the ruler's palace of a *rājadhāni*. The number of inhabitants in the *gāmas* of the Jātaka tales varied from 30 to 1000 families. And family (*kula*), it must be remembered, was a more

comprehensive unit than it is with us, including not only father and mother, children and grandparents, but also the wives and children of the sons. *Gāma*, it is true, might be used to differentiate a class of settlement, as in the compound *gāma-nigama*, 'villages and towns'; but it is also used in the wider, looser sense of group as opposed to single house. For instance, a fire, when starting in a house, may extend to the whole *gāma*.' When a *bhikkhu* leaves park, forest, or mountain to seek alms, he enters the gāma,' whether it be a neighbouring village, or the suburbs of great Sāvatthi.

Of such cities there were few in Northern India. Less than twenty are named. Six of them only are reckoned by the *There Ananda* as sufficiently important cities (*mahā-nagarā*) to be the scene of a Buddha's final passing away: Sāvatthī, Champā, Bājagaha, Sāketa, Kosambī, Benares, Kusinarā, where that event actually look-place, he depreciates as not a 'village but a jungle townlet' (*nagaraka*). The greatness of Pātaliputra (Patna) was yet to come. In the absence of any systematic account of this rural organisation in ancient records, it is better to refrain from Laying down any homogeneous scheme. 'No doubt different villages, in different districts, varied one from another in the customs of land-tenure, and in the rights of individual householders as against the community. The jungles and rivers of the vast Ganges valley fostered independent development probably at least as much as the hill-barriers in the Alps have done in the case of Swiss and Italian peasant communities down to this day.

Around the *gāma*, which appears to have been classed as of the country (*janapala*), of the border (*paccanta*), or as suburban, lay its *khetta*, or pastures, and its woodland or uncleared jungle: — primeval forest like the Andhavana of Kosala, the Sītavana of Magadha, the Pācīnavamsadāya of the Sākiya Territory, retreates traditionally haunted by wild beast and by gentler woodland sprites, and where Mara, the Lucifer of seductive evil influences, might appear in one shape or another. Different from these were such suburban groves as the Bamboo Grove belonging to Magadha's

king, the Añjanavana of Sāketa, the Jetavana of Sāvatthi. Through those other uncleared woodlands and moorlands, where the folk went to gather their firewood, and litter, ran caravan routes, roads that were at times difficult because of swampy passages after rain, and here and here dangeroues, less on account of aggressive beasts than because of brigands not to mention demonic bipeds.

Adjoining or merged into these wilder tracts were supplementary grazing pastures of herds of cattle and goats —herds belonging to king or commoners. Commoners customarily entrusted their flocks to a communal neatherd, as we find in the Pennine Alps to-day (*le fromageur*). We find him either penning his herds at night in sheds, or, more often, bringing them back every evening and counting them out to the several owners, varying the pasturage from day to day. The official name *gopālaka* and the context suggest that dairy work was not usually expected of him so much as sagacity in minding his beasts.

The arable ground of the *gāma* lay without the clustered dwellings, since these were apparently enclosed by a wall or stockade with gates *gāmadvāra*, Fences, snares, and field watchmen guarded the *khetta* or *gāmakhetta* from intrusive beasts and birds, while the internal boundaries of each householder's plot were apparently made by channels dug for co-operative irrigation. These dividing ditches, rectangular and curvilinear, were likened, at least in the Magadha khettas, to a patchwork robe, and prescribed by the Buddha as a pattern for the uniform of his Order: torn pieces of cast-away cloth sewn together, 'a thing which could not be coveted. The limits of the whole *khetta* might be extended by fresh clearing of forest land. And whereas the majority of holdings were probably small, manageable single-handed or with eons and perhaps a hired man, estates of 1000 *karisas* (acres) and more occur in the Jātakas, farmed by Brāhmans. In the Suttas, again the Brāhman Kasibhāradvajais employing 500 ploughs and hired men (*bhatikā*) to guide plough and oxen. Rice was the staple article of food; besides which seven other kinds of grain are mentioned; sugar-cane and fruits, vegetables and flowers were also cultivated.

Instances of collectivist initiative reveal a relatively advanced sense of citizenship in the *gāmas*. The peasant proprietors had a nominal head in the *bhojaka* or headman, who, as their representative at political headquarters and municipal head, was paid by certain dues and fines. But all the village resident met to confer with him and each other on civic and political matters. And carrying the upshot of their counsels into effect, they built new mote-halls and rest-houses, constructed reservoirs and parks, and took turns at a voluntary *corvee* in keeping their roads in repair, herein again followed by Alpine peasants of to-day. Women too considered it a civic honour to bear their own part in municipal building. A further glimpse into the sturdy spirit in *gāma-life* is caught in the Jātaka sentiment, that for peasants to leave their tillage and work for impoverished kings was a mark of social decay. Relevant to this is the low social rank assigned to the hired labourer, who is apparently classed beneath the domestie slave.

Security owing to drought or to floods is not infrequently referred to, extending even over a whole kingdom. This contradicts the 'affirmation' recorded by Megasthenes, that 'famine has never visited India,' unless his informant meant a very general and protracted famine. The times of scarcity in Buddhist records apparently refer only to brief periods over restricted areas. Nothing in all the foregoing evidence has gone to show that, in the India of early Buddhist literature, the pursuit of agriculture was associated with either social prestige or social stigma. The stricter Brahman tradition, not only in the law-books, but also in the Sutta Nipāta, the Majjhima Nikāya, and the Jātakas, expressly reserved the two callings of agriculture and trade for the Vaiya or middle class, and judges them unfit for Brāhman or noble. Thus the Brāhman Esukārī of Sāvatthī considers village and dairy farming as not less the property and province of the Vaicya than are bow and arrow, endowed maintenance (by alms), and sickle and yoke, the property and province of noble, Brahman, and working classes respectively. And here and there, in the Jātaka-book, Brahmans who engage in agriculture, trade, and other callings are declared to have fallen

from their Brahmanhood. On the other hand, in both Jātakas and Suttas, not only are Brahmans frequently found pursuing tillage, cow herding, goat keeping, trade, hunting, wood-work or carpentry, weaving, caravan guarding, archery, carriage-driving, and snake-charming, but also no reflection is passed upon them for so doing, nay, the Brahman farmer is at times a notably pious man and a Bodhisat to boot. Dr. Fick is disposed to think that the North-western (*Udicca*) Brahmans of the Kurus and Pañchālas, some of whom came east and settled there, inherited a stricter standard. Nevertheless it is not claimed for the pious ones just mentioned, living near Benares and in Magadha, that they were *Udicca* immigrants. Even the law-books permit Brahmans to engage in worldly callings if they are in straitened circumstances, or if they take no active share in the work.

As for the Kshaṭriya clansmen of the republics mentioned above, they were largely cultivators of the soil. For instance, in the *Kunāla Jātaka*, it was the workmen in the fields of the Śākiyan and Koliya '*bhojakas, amaccas* and *uparājas*, who began to quarrel over the prior turn to irrigate. In the earliest Indian literature agricultural and pastoral concepts play a great part. But even if this implied that a special dignity attached to agriculture, it does not follow that any such tradition survived, if it survived at all, associated with any section of society. There was among Indo-Aryans little of the feudal tie between land and lord with lordship over the land-tillers, which made broad acres a basis for nobility in the West. However they accomplished their prehistoric invasion of the Ganges basin, 'land-grabbing' does not seem to have been carried out *pari passu* with success in generalship. This may have been because the annexation of land to any wide extent meant clearing of jungle. Except among Dravidian and Kolārian towns along the rivers, the task of the invaders was more like that of pioneering settlers in America. And there we know that land is not an appanage involving special privileges and entailing special claims, but a commodity like any other.

The slave or servant (*dāsa, dāsi*) was an adjunct in all households able to command domestic service; but slaves do not appear to have

been kept, as a rule, in great numbers, either in the house, or, as in the West, at mining or 'plantation' work. Their treatment differed of course according to the disposition and capacity of both master and slave. Thus we find, in the Jātaka, the slave, petted, permitted to learn writing and handicrafts besides his ordinary duties as valet and footman, saying to himself that, at the slightest fault he might get 'beaten, imprisoned, branded, and fed on slave's fare. But of actual ill-treatment there is scarce any mention. Two instances of beating occur, and in both the victims were maids. One lies a-bed repeatedly (to test her pious mistress's temper), the other fails to bring home wages. Presumably she had been sent to fetch her master's wage, or else had been hired out. But we do not meet with runaway slaves. Slavery might be incurred through capture, commuted death sentences, debt voluntary self-degradation, or judicial punishment; on the other hand, slaves might be manumitted, or might free themselves by payment. They might not, while still un-discharged, be admitted into the religious community (*Sañgha*). The hireling, wage-earner, day-labourer was no man's chattel, yet his life was probably harder sometimes than that of the slaves. He was to a great extent employed on the larger land-holdings. He was paid either in board and lodging, or in money-wages. Manu prescribes regular wages both in money and kind for menials in the king's service.

Industrial Specialisation

In the arts and crafts, a considerable proficiency and specialisation of industry had been reached. A list of callings given in the Milindapañha, reveals three separate industries in the manufacture of bows and arrows, apart from any ornamental work on the same. In the same work, the allusion to a professional winnower of grain indicates a similar division of labour to our own threshing machinists and steamplough-owners who tour in rural districts. As certain grain crops were reaped twice a year, this would afford a fairly protracted season of work every few months. Some trade-names, on the other hand, are as comprehensive as our 'smith.' As with us,

this word (*kammāra*) might be applied to a worker in any metal. *Vaḍḍhaki*, again, apparently covered all kinds of woodcraft including shipbuilding, cartmaking, and architecture, *thapati*, *tacchaka* (lit, planer), and *bhamakāra* or turner being occupied with special modes of woodwork. A settlement of *Vaḍḍhakis* is able to make both furniture and seagoing ships. Once more the same worker in stone (pāsāṇa-'koṭṭaka) builds houses with the ruined material of a former *gāma*, and also hollows a cavity in a crystal as a cage for a mouse.

Important handicrafts like the three above named and their branches, the workers in leather, *i.e.*, the leather-dressers, the 'painters,' and others to the number of eighteen were organised into gilds (*seṇi*) according to Jātaka records; but it is to be regretted that only four of the eighteen crafts thus organised are specifically mentioned, 'the woodworkers, the smiths, the leather-dressets, the painter and the rest, expert in various crafts. At the head of each gild was a president (*pamukha*) or alderman (*jeṭṭhaka*), and these leaders might be important ministers in attendance upon and in favour with the king. Occasionally these functionaries quarrelled, as at Savatthi. And it may have been such quarrelling also at Benares that led to the institution of a supreme headship over all the gilds, an office doubled with that of treasurer (*bhaṇḍāgārika*) being founded at that city. It is of interest to note that this innovation in administrative organisation was made at a time when, according to the legend, the monarchy is represented as having been elective, not hereditary, and when the king who appointed, and the man who was appointed, were the sons, respectively, of a merchant and a tailor. The nature and extent of the authority of the *pamukha* over the gilds is nowhere clearly shown. Nor it is clear to what extent the duties of a *bhaṇḍāgārika*, lit, 'houser of goods', coincides with our word 'treasurer'. It was not confined to the custody of moneys, for the *Saṇgha* had officials so named; hence it is possible that it referred to a supervision of the goods made or dealt with by a gild or gilds and not only to the king's exchequer.

Nor can we with any certainty fill up the fourteen unnamed gilds. A great many arts and crafts are mentioned in the books,

some of them held in less social esteem than others. Among the latter were trades connected with the slaying of animals and work on their bodies, *e.g.*, hunters and trappers, fishermen, butchers, and tanners. Yet other such despised callings were those of snake-charming, acting, dancing and music, rush weaving and chariot-making, the last two because of the despised, probably aboriginal, folk whose hereditary trades they were. Other more honourable crafts were ivory-working, weaving, confectionery, jewelry and work in precious metals, bow and arrow making, pottery, garland-making and head-dressing. Besides these handicrafts, there was the world of river and sea-going folk, the trader or merchant, and, corresponding in a limited way to the first named the caravan escorts and guides or 'land-pilots' (*lthala-niyyāmaka*). But although reference is made in connation with some of these, to a *jeṭṭhaka* or Elder, no further evidence of civic organisation ie forthcoming. Other instances of trades having jet *jeṭṭhakas* are seamen, or at least pilots (*niyyāmaka*), garland makers, caravan traders and guards, and robbers or brigands. We read, *e.g.*, of a little robber-*gāma* in the hills, near Uttara-Pañchāla, numbering 500 families. The learner or apprentice (*antevāsika*, literally 'the boarder') appears frequently in Buddhist books, one of which indicates the relative positions of pupil and master woodwright. But no conditions of pupilage are anywhere stated.

The title of *seṭṭhi* (best, chief), which is so often met with and, without much justification rendered by 'treasurer,' may possibly imply headship over some class of industry or trading. It is clear that the famous *seṭṭhi*, Anāthapiṇḍika of Sāvatthī the millionaire lay-supporter of the *Sangha*, had some authority over his fellow-traders. Five hundred *seṭṭhis e.g.*, attended him in his presentation of the Jetavana to the Buddha. Unless these were convened from different towns, the number in any one town was not limited to one or a few. They are usually described as wealthy, and as engaged in commerce. Dr. Fick is probably right in alluding to them as representing the mercantile profession at court. The word certainly implied an office (*ṭhāna*) held during life. There might be a chief

(*mahā*) *seṭṭhi*, and an *anuseṭṭhi* or subordinate officer: a commentary even refers to the 'insignia of a *seṭṭhi-chatta* (umbrella of state).

The remarkable localisation of industries revealed in Buddhist literature has already been noticed. This is observable especially in the ease of craft-villages of woodwrights, ironsmiths, and potters. These were either suburban to large cities, or rural, and constituting as such special markets for the whole countryside, as we see in the ironsmiths, *gāma* just cited, to which people came from the *gāmas* round about to have razors, axes, ploughshares, goads, and needles made. On the Ganges or further a field there were trapper *gāmas*, supplying games, skins, ivory etc.

Within the town we meet with a further localization of trades in certain streets, if not quarters, *e.g.*, the street (*vithi*) of the ivory workers in Benares, the dyers' street, the weavers' 'place' (*thāna*), the Vessas' (merchants) street. Combined with this widespread corporate regulation of industrial life, there was a very general but by no means cast-iron custom for the son to follow the calling of the father. Not only individuals but families are frequently referred to in terms of their traditional calling. The smith *e.g.* is Smithson; Sati the fisherman's son is Sati the fisherman; Chunda the smith is called Chunda Smithson, etc. This, however, is not peculiar to Indian or even to Aryan societies, up to a certain stage of development. Even of our own it was said but half a century ago that the line of demarcation between different employments or grades of work had till then been 'almost equivalent to an hereditary distinction of caste. In modern India no doubt these lines of demarcation have intensified in the course of centuries, and have split up the industrial world into a, to us, bewildering number of sections, or as the Portuguese called them, castes.

The Jātakas reveal here and there a vigorous etiquette observed by the Brahman 'colour' in the matter of eating with, or of the food of, the despised Chandalas, as well as the social intolerance felt for the latter by the burgess class. The Jātaka commentary tells the story of a slave-girl, daughter of a slave and a Khattiya, whose father pretended to eat with her only that she might be passed off

before the Kosalans, seeking a nobly born consort for their king, as a thorough-bred Sakiyan. On the other hand, a great many passages from both Jātaka and other canonical books might be quoted to show that the four 'colours' are on the whole to be taken in no stricter sense than we speak of 'lords and commons,' 'noblesse, eglise, tiers-etal,' 'upper, middle, lower classes.' That Brahmans claimed credit if born of Brahmans on both sides for generations back, betrays the existence of many born from a less pure 'connubium.' In the *Kusa* Jātaka, a Brāhman takes to wife the childless chief wife of a king without 'losing caste' thereby. Elsewhere in the Jātaka-book princes, Brahmans, Seṭṭis are shown forming friendships, sending their sons to the same teacher, and even eating together and intermarrying, without incurring any social stigma or notoriety as innovators or militants. The following instances may be quoted :

A king's son, pure bred, cedes his share of the kingdom to his sister, turns trader and travels with his caravan. A prince, whose wife in a fit of displeasure has returned to her father, apprentices himself at that father's court, without entailing subsequent social disgrace, to the court potter, florist, and cook successively, in order to gain access to her. Another noble, fleeing from his brother, hires himself to a neighbouring monarch as an archer. A prince resigning his kingdom, dwells with a merchant on the frontier, working with his hands. A commentarial tradition represents a child of the Vaccha Brahmans as the 'sand-playmate' of the little Siddhattha, afterwards the Buddha. A wealthy, pious Brahman takes to trade to be better able to afford his charitable gifts. Brahmans engaged personally in trading without such pretext, taking service as archers, as the servant of an archer who had been a weaver, as low-caste trappers, and as low-caste carriage-makers.

Again, among the middle classes, we find not a few instances revealing anything but caste-bound heredity and groove, to wit, parents discussing the best profession for their son: — writing, reckoning, or money-changing (*rūpa*?), no reference being made to the father's trade; a (low-class) deer-trapper becoming the protege

and then the 'inseparable friend' of a rich young Seṭṭhi, without a hint of social barriers; a weaver looking on his handicraft as a mere make-shift, and changing it off-hand for that of an archer; a pious farmer and his son, with equally little ado, turning to the low trade of rush weaving; a young man of good family but penniless, starting on his career by selling a dead mouse for cat's meat at a 'farthing,' turning his capital and his hands to every variety of job, and finally buying up a ship's cargo, with his signet-ring pledged as security, and winning both a profit 200 per cent and the hand of the Seṭṭhi's daughter.

Trade Mechanism

This freedom of initiative and mobility in trade and labour finds further exemplification in the enterprise of a settlement (*gāma*) of wood- workers. Failing to carry out the orders for which prepayment had been made, they were summoned to fulfil their contract. But they, instead of 'abiding in their lot,' as General Walker the economist said of their descendants, 'with oriental stoicism and fatalism,' made 'a mighty ship' secretly, and emigrated with their families, slipping down the Ganges by night, and so out to sea, till they reached a fertile island. Stories, all of these, not history; nevertheless they serve to illustrate the degree to which labour and capital were mobile at the time, at least, when these stories were incorporated in the Buddhist canon, and before that. And they show that social divisions and economic occupations were very far from coinciding. There was plenty of pride of birth, which made intermarriage and eating together between certain ranks an act more or less disgraceful to those reckoning themselves as socially higher. And sons, especially perhaps among artisans, tended to follow the paternal industry.

The trade of the trader, dealer, or middleman (*vāṇija*) may well have been largely hereditary. Traditional good-will handed on here would prove specially effective in commanding confidence, and thus be a stronger incentive than the force a *tergo* of caste-rule. There is, however, no instance as yet produced from early Buddhist

documents pointing to any corporate organisation of the nature of a gild or Hansa league. The hundred or so of merchants who, in the *Chullaka-Seṭṭhi* Jātaka, come to buy up the cargo of a newly arrived ship, are apparently each trying to 'score off his own bat' no less than the pushful youth who forestalled them. Nor is there any hint of syndicate or federation or other agreement existing between the 500 dealers who are fellow passengers on board the ill-fated ships in the *Vala" hassa* and *Pāṇḍara Jātakas;* or the 700 who were lucky enough to secure Suppāraka as their pilot, beyond the fact that there was concerted action in chartering one and the same vessel. Among merchants travelling by land, however, the rank of *satthavāha* or caravan-leader seems to imply some sort of federation. This position was apparently hereditary, and to be a *jeṭṭhaka* or elder, in this capacity, on an expedition, apparently implied that other merchants (*vānija*) with their carts and caravan-followers, were accompanying the *satthavāha*, and looking to him for directions as to halts, watering, precautions against brigands, and even as to routes, fording, etc. Subordination, however, was not always ensured, and the institution does not warrant the inference of any fuller syndicalism among traders.

Partnerships in commerce, either permanent, or on specified occasions only, are frequently mentioned: the former, in the *Kūṭavāṇija* and *Māhāvāṇija* Jātakas, the latter in the *Pāyāsi* Suttanta and the *Serivānija* Jātaka. In the *Jarudapāna* Jātaka there is, if not explicit statement, room for assuming concerted commercial action on a more extensive scale, both in the birth-story and also in its introductory episode. The caravan in question, consisting of an indefinite number of traders (in the birth-story, under a *jeṭṭhaka,* accumulate and export goods at the same time, and apparently share the treasure trove, or the profits therefrom. In the episode the firm also wait upon the Buddha with gifts before and after their journey. These were traders of Sāvatthĭ, of the class who are elsewhere described as acting so unanimously under Anāthapiṇḍika, himself a great travelling merchant. The *Guttila* Jātaka, again, shows concerted action, in work and play, on the part of Benares trades. It is

conceivable, however, that the travelling in company may have been undertaken as much for mutual convenience in the chartering of a common ship, or the employment of a single band be forest-guards, as for the prevention of mutual under-selling or the cornering of any wares. Merchants are represented, at least as often, as travelling with their own caravan alone. Thus in the first Jātaka two traders, about to convey commodities to some distant city, agree which shall start first. The one thinks that, if he arrive first, he will get a better, because non-competitive price; the other, also holding that competition is killing work (lit. price-fixing is like robbing men of life'), prefers to sell at the price fixed, under circumstances favourable to the dealer, by his predecessor, and yields him a start.

The little *apercus* which we obtain from the Jātakas of the range and objective of such merchants' voyages are so interesting as side-lights on early trafficking as to create regret at their seantiness. The overland caravans are sometimes represented as going 'east and west', and across deserts that took days, or rather nights to cross, a 'land-pilot' (*thalaniyyāmaka*) steering during the cooler hours of darkness by the stars, Drought, famine, wild beasts, robbers and demons are enumerated as the dangers severally besetting this or that desert route. Such caravans may have been bound from Benares, the chief industrial and commercial centre in early Buddhist days, across the deserts of Rājputāna westward to the seaports of Bharukaccha, the modern Broach and the sea board of Sovīra, (the Sophir, or Ophir, of the Septuagint?), and its capital Roruva or Roruka Westward of these ports there was traffic with Babylon, or Bāveru. At a later date, say, at the beginning of the first century AD the chief objective of Indian sea-going trade is given in the *Milinda* as follows:

As a shipowner who has become wealthy by constantly levying freight in some seaport town, will be able to traverse the high seas, and go to Vanga or Takkola, or China or Sovīra, or Surat, or Alexandria, or the Kormoandel coast, or Further India, or any other place where ships do congregate. Tamil poems testify to the flourishing state of Kāviri-paṭṭinam (Kamara in *Periplus*, Khabari

of Ptolemy), capital of Chola, on the Kāveri river, at about the same period as a centre of international trade especially frequented by Yavana (Yona, Ionian) merchants. According to the Jātaka it was practicable to attain to any of these ports starting from up the Ganges, not only from Champā (or Bhāgalpur, about 350 miles from the sea) but even from Benares. Thus the defaulting wood wrights mentioned above reach an ocean island from the latter city; Prince Mahājanaka sets out for Suvaṇṇabhū mi from Champa, and Mahinda travels by water from Patna to Tāmalitti, and on to Ceylon. It is true that the world *Samudda* sea, is occasionally applied to the Ganges, nevertheless, if the foregoing stories be compared with the *Sankha* Jataka, it becomes probable that the open sea is meant in both. In this the hero, while shipwrecked, washes out his mouth with the salt water of the waves during his self-imposed fast. Again, in the Sīlānisamsa Jātaka, a sea-fairy as helmsman brings 'passengers for India' by ships 'from off the sea to Benares by river. Other traders are found coasting round India from Bharukaccha to Suṇṇvaabhūmi, doubtless putting in at a Ceylon port; for Ceylon was another bourne of oversea commerce, and one associated with perils around which Odyssean legends had grown ups. The vessels, according to Jātaka tales, seem to have been constructed on a fairly large scale, for we read of hundreds' embarking on them, merchants or emigrants. The numbers have of course no statistical value; but the current conceptions of shipping capacity are at least interesting.

The nature of the exports and imports is seldom specified. The gold which was exported to Persia as early at least as the time of Darius Hystaspes, finds no explicit mention in the Jātakas. Gems of various kinds are named as the quest of special sea-farers anxious to discover a fortune. 'Silks, muslins, the finer sorts of cloth, cutlery and armour, brocades, embroideries and rugs, perfumes and drugs, ivory and ivory-work, jewelry and gold (seldom silver): these were the main articles in which the merchant dealt'. As to the inland routers, the Jātakas tell of Anāthapiṇḍika's caravans travelling S.E. from Sāvaṭṭhī to Rājagaha and back (about 300 miles), and also to the 'borders,' probably towards Gandhara. The route in the former

journey was apparently planned to secure easy fording of the rivers by following the foot of the mountains to a point north of Vesālī and only then turning south to the Ganges'. Another route south-west from Sāvaṭṭhī to Paṭiṭṭhāna, with six chief halting places, is given in the Sutta Nipāta, verses 1011-13. From east to west, traffic, as we have seen, was largely by river, boats going up the Ganges to Sahajāti, and up the Jumna to Kosambī. Further westward the journey would again be overland to Sind, whence came large imports in horses and cisses, and to Sovīra and its ports. Northward lay the great trade route connecting India with Central and Western Asia, by way of Taxila in Gandhāra (Pāli *Takkaisilā*), near Rawalpindi, and presumably also of Sāgala in the Punjab. This great road and its southern connexions with the leading cities of the Ganges valley must have been, even in early Buddhistic days, relatively immune from dangers. Instances abound in the Jātakas of the sons of nobles and Brahmans faring, unattended and unarmed, to Takkasilā to be educated at this famous seat of Brāhmanical and other learning.

There were no bridges over the rivers of India. The *setu* or causeway of Buddhist metaphor is a raised dyke built over shoal water. Only fording-places and ferries for crossing rivers are mentioned in Buddhist litonituro, and cart-ferries in Manu. Food-stuffs for the towns were apparently brought only to the gates, while workshop and bazaar occupied, to a large extent at least, their own special streets within. Thus there was a fishmonger's village at a gate of Savatthi, greengrocery is sold at the four gates of Uttara-Pafichala, and venison at the cross-roads (singhataka) outside Benares.

The slaughter-houses (*sūnā*) mentioned in the Vinaya were presumably outside also, and near them the poor man and the king's *chef* bought their meal, unless by *sīnghātaka* we understand street-corners as the places where meat was sold. The great city of Mithilā was, according to the *Mahā-ummagga*. Jātaka, composed in part of four suburbs extending beyond each of its four gates, and called not *gāmas*, but *nigamas*. These were named respectively

East, South, West, and North Yavamajjhako, translated by Cowell and Rouse 'market-town'. The workshop in the street was open to view, so that the *bhikkhu* coming in to town or village for alms, could see fletcher and carriage-builder at work, no less than he could watch the peasnt in the field. Arrows and carriages and other articles for sale were displayed in the *apana*, or fixèd shop, or, it might be, stored within the *antarāpaṇa*. In these or in the portable stock-in-trade of the hawker, retail trading constituted a means of livelihood, independently, it might be, of productive industry. The application, judgment, cleverness, and connexion' of the successful shopkeeper are discussed in the Nikayas, and among trades five are ethically proscribed for lay believers:—daggers, slaves, flesh, strong drink, poisons.

Textile fabrics groceries and oil, greengroceries, grain, perfumes and flowers articles of gold and jewelry, are among the items sold in the bazars of Jātaka stories and Vinaya allusions, and for the sale of strong liquors there were the taverns (*pānāgāra, āpāna*)19. But there is no such clear reference made either to a market-place in the town, or to seasonal market-days or fairs. Such an institution at the *hāth*, or barter fair, taking place on the borders of adjacent districts, finds, curiously enough, no mention in the Jātaka-book, though as the late Wm.Irvine wrote, 'it is to this day universal to my personal knowledge, from Patna to Delhi, and, I believe, from Calcutta to Peshawar.' The fetes often alluded to do not appear to have included any kind of market.

Exchange Mechanism

The act of exchange between producer and consumer, or between either and a middleman, was both before and during the age when the Jātaka-book was compiled, a 'free' bargain, a transaction unregulated, with one notable exception, by any system of statute-fixed prices. Supply was hampered by slow transport, by individualistic próduction, ano by primitive machinery. But it was left free for the producer and dealer to prevail by competition, and also by adulteration, and to bring about an equation with a demand

which was largely compact of customary usage and relatively unaffected by the swifter fluctuations termed fashion.

Instances of price-haggling are not rare, and we have already noticed the dealer's sense of the wear and tear of it, and a case of that more developed competition which we know as 'dealing in futures'. The outlay in this case, for a carriage, a pavilion the Benares docks, men (*purisā*), and ushers (*pātihārā*), must have cut deep into his last profit of 1,000 coins, but he was 20,000 per cent to the good as the result of it! After this the profit of 200 and 400 per cent. reaped by other traders falls a little flat, and such economic thrills only revive when we consider the well-known story of the fancy price obtained by Prince Jeta for his grove near Sāvatthī from the pious merchant Anāthapiṇḍiika, limited only by the number of coins (metal uncertain) required to cover the soil.

At the same time custom may very well have settled price to a great extent. 'My wife is sometimes as meek as a 100-price slavegirl reveals a customary price. For the royal household, at least, prices were fixed without appeal by the court valuer (*agghakāraka*) who stood between the two fires of offending the king if he valued the goods submitted at their full cost, or price as demanded, and of driving away tradesmen if he refused bribes and cheapened the wares. On the other hand the king might disgust him by too niggardly a bonus. It may also have been the duty of this official to assess the duty of one-twentieth on each consignment of native merchandise imported into a city, and of one-tenth, *plus* a sample, on each foreign import, as stated in the law-books of Manu, Gautama, and Baudliayana. Such oetrois are alluded to in one Jātaka, where the king remits to a subject the duty collected at the gates of his capital. Finally, it may have been his to assess merchants for their specific commutation of the *rājakāriya*, namely, one article sold per month to the king at a discount (*arghāpacayena*).

The 'sample' mentioned above is suggestive of a surviving payment made in kind. That the ancient systems of barter and of reckoning values by cows or by rice-measures had for the most part been replaced by the use of a metal currency, carrying well

understood and generally accepted exchange value, is attested by the earliest Buddhist literature. Barter emerges in certain contingencies, as *e.g.* when a wanderer obtains a meal from a woodlander for a gold pin, or when among humble folk a dog is bought for a *kahāpaṇa* (*kārshāpaṇa*) *plus* a cloak. Barter was also permitted in special commodities by the law-books ascribed to Gautama and Vasishtha and was prescribed in certain cases for the *Sañgha*, to whom the use of money was forbidden. Moreover, as a standard of value, it is possible that rice was still used when the Jātaka-book was compiled.

But for the ordinary mechanism of exchange we find, in that and all early Buddhist literature, the worth of every marketable commodity, from that of a dead mouse and a day at the festival up to all kinds of prices, fees, pensions, fines, loans, stored treasure, and income, stated in figures of a certain coinṡ, or its fractions. This is either stated, or implied to be, the *kahapāṇa*. Of the coins called *purāṇas* this literature knows nothing. Other current instruments of exchange are the ancient *nikkha* (*nishka* — a gold coin, originally a gold ornament), the *suvaṇṇa*, also of gold, and such bronze or copper tokens as the *kamsa*, the *pāda*, the *māsaka* (*māsha*), and the kākāṇikā, Cowry shells (*sippikāni*) are once mentioned, but only as we should speak of do its or mites not as anything still having currency. That there was instability as to the relative value of standard or token coins in place and time we learn from the Vinaya: At that time [of Bimbisara or Ajātasattu], at Rājagaha, five māsakas were equal to one pada'. Again, the *nikkha* was valued now at five, now at four suvannas.

Of substitutes for money, such as instruments of credit, we read of signet rings used as deposit or security, of wife or children pledged or sold for debt, and of IOU's or debt-sheets (*iṇapaṇṇāni*). The bankrupt who, in, the Jātaka tale, invites his creditors to bring their debt-sheets for settlement, only to drown him self before their eyes, appears in a Milinda simile anticipating the crisis by making a public statement of his liabilities and assets the entanglement and anxieties of debt as well as the corporate liability belonging to

communistic life in a religious order rendered it necessary to debar any candidate from admission to the *Sangha* who was a debtor. And the sight of a deposited security recalling the past circumstances of the pledging is instanced in the Milinda as a case of the physical process of recollection (*satī*).

No definite rates of interest on money loans appear in the early books. But the term which appears in the law-books as 'usury' (*vṛddhi*, *Pāli vaḍḍhi*) is found. Meaning literally profit or increase, it may very early have acquired the more specialised import. There is a tolerant tone concerning the moneylender in a Jātaka tale, where a patron, in enabling a huntsman to better himself, names money-lending (*iṇa-dāna*), together, with tillage, trade, and harvesting as four honest callings. Gautama is equally tolerant. But the general tendency of this profession to evade any legal or customary rate of interest and become the type of profit-mongering finds condemnation in other law-books. Hypocritical ascetics are accused of practising it. No one but the money-lender seems to have lent capital wealth for interest as an investment. For instance, only bonds (*paṇṇā*) are spoken of in the case of the generous Anāthapiṇḍika's 'bad debts'. Capital wealth was hoarded, either in the house—in large mansions over the entrance passage (*dvārakoṭṭhaka*)—under the ground, in brazen jars under the river bank, or deposited with a friend. The nature and amount of the wealth thus hoarded was registered on gold or copper plates.

Fragmentary as are the collected scraps of evidence on which the foregoing outlines of social economy have been constructed, more might yet be inferred did space permit. It should, however, be fairly clear from what has been said, that if, during, say, the seventh to the fourth century BC it had been the vogue, in India, to write treatises on economic institutions, there might have come down to us the record both of conventions and of theories as orderly and as relatively acceptable to the peoples as anything of the kind in, say, the latter middle ages was to the peoples of Western Europe. But it is a curious fact that often where the historian finds little material to hand wherewith to rebuild, he

judges that there never were any buildings. Thus in a leading historical work on economics, revised and enlarged in 1890, the whole subject of the economic ideas of the 'Orient' is dismissed in a single page as being reducible to a few ethical precepts, and as extolling agriculture and decrying arts and commerce; further, that division of labour, though politically free, stiffened into a system of hereditary caste, arresting economic progress, and that the Chinese alone, and only from the seventh century AD, had any insight into the nature of money and its fiduciary substitutes. But we have been looking behind the ethical precepts of the preacher, and the sectarian scruples of a class, at the life of the peoples of North India, as it survives in the records of their folk-lore, and of the discipline of the brethren in orders who lived in close touch with all classes. And we have seen agriculture diligently and amicably carried on by practically the whole people as a toilsome but most natural and necessary pursuit. We have seen crafts and commerce flourishing, highly organised corporately and locally, under conditions of individual and corporate competition, the leading men thereof the friends and counselors of kings. We have found 'labour' largely hereditary, yet, therewithal, a mobility and initiative anything but rigid revealed in the exercise of it. And we have discovered a thorough familiarity with money and credit ages before the 'seventh century AD.'

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8

Mauryan Politics and Political Economics

In the pre-Mauryan period, the early pastoral economy of the Ganges valley had changed to a village economy based on agriculture. This brought with it an element of permanency in the village settlements as against the nomadism of the pastoralists. Agrarian village communities became the general pattern. This was a natural step after the forests spread from the Ganges valley to other areas and it became possible to regard these areas as one unit. This in turn considerably facilitated the administrative system. Administrative ideas could be developed more easily since the same general pattern existed in most areas. The importance of land revenue as the basic source of the state income came to be recognized. A uniform system of taxation was started, its uniformity lying in the method of assessment though not necessarily in the amount assessed.

Economic Regulations

The establishment of the agrarian economy did not exclude other forms of economic activity. Variations on the economic structure continued to exist but generally tended to be concentrated in areas not devoted to agriculture. The expansion of the agrarian economy accelerated the realization that a single predominant economy

facilitated the evaluation of taxes. For instance, coastal areas dependent on maritime trade would continue this activity and would be regarded by the administrators as areas devoted to one main economic pursuit and would be taxed accordingly. There was much to be gained by those governing a settled economy which would permit of a regular system of taxation and tax rates. Kauṭilya, the theorist of the politico-economic basis of the Mauryan state, therefore, devotes an important part of the *Arthashastra* to the application of taxation.

The collection of revenue from various sources, particularly from the land, meant the appointment of a series of officials to administer the various stages of this collection. A complex bureaucratic system emerged, bringing with it its own economic aspects such as the payment of salaries. It is significant that these were paid in cash and kind but not in land grants. The salaries appear to have been extremely high particularly in the upper strata of officials. The salaries are recorded in *panas* but the value of the *pana* is not yet known. Nevertheless the ratio of salaries can be worked out, as a fairly detailed list is given. The chief minister was to receive 48,000 *panas* and the clerk, 500 *panas*, a ratio of 96:1. Other lesser ministers were to receive 24,000 *panas*, or 48:1. This made a large surplus in the treasury obligatory. The upper strata of officials were particularly important to the political system, the fact of centralization being dependent upon them. Political control revolved around the relationship between the official and the cultivator, and as long as the administrative machinery was efficient, the imperial structure had greater chances of survival.

The current theory of land ownership, that the land was owned by the king, made the concept of empire more feasible. Megasthenes states that the king owned the land. This has caused much controversy, some historians being of the opinion that this statement is incorrect. The area of the Mauryan empire being so vast and at such dissimilar stages of development, it is not likely that one particular type of land ownership prevailed. In the Ganges plain however, there probably was a uniform system. The possibilities of

land ownership at the time were three, the king, the state and large-scale landowners. (Communal ownership is a later idea and there is no reference either to cultivators owning the land) Both Kauṭilya and Megasthenes do not refer to landowners. Only in the *jātakas* is there a reference to *gahapatis* and *gamabhojakas*. Their precise function is not indicated, and there is in fact no certainty that they were landowners. If they had been a significant class their role in the economy would most certainly have been discussed by Kauṭilya and Megasthenes. It is difficult to see how such a class fitted into the Mauryan centralized imperial system, and it is strange that an extensive land-owning gentry did not modify the political system in order to incorporate its own power and position. It has been suggested that the *gamabhojaka* may have referred to persons who were entitled to the revenue of the land, in payment of services rendered to the king. But the *Arthashastra* is very firm on the question of payment being in cash or kind and not by gifts of land or land revenue. The existence of *gahapatis* and *gamabhojakas* either owning land or enjoying the revenue of land conforms to a greater extent with the picture of post-Mauryan India (Sharma, 1958). Since the Jātakas include material from the post-Mauryan period as well, we may assume that this reference is to a later period.

As to whether the land was owned by the king or the state, the question is somewhat confused at this period. Law books of a later period explain the position very clearly. A distinction is made between the ownership of the land for which the word *svam* (and its derivatives *svatra*, *svamya*, *svamitra*) are used, and revenue rights alone for which the word *bhoga* is used. Thus there would be a difference between the lands personally owned by the king which he could dispose of as he wished, and the state lands whose tax he received as the head of the state and which he did not therefore own but merely enjoyed their produce. Private donations of land would be made from the first category of lands or crown lands. The *Arthashastra* refers to crown lands, the income of which formed part of what would be termed in modern times the privy purse. The rest of the land theoretically would belong to the state. Here,

however, usage complicates theory. The distinction between the king and the state was not emphasized at this time, and the two tended to be confused. It is extremely difficult at this period to distinguish between the king in his personal capacity and the king as the head of the state.

Unfortunately, there is only one reference to land revenue in the inscriptions of Asoka. This is to be found in the Rummindei inscription. Lumbini being the birth-place of the Buddha was exempted from the land tax, and the tax to be paid on the produce of the land was cut to one-eighth (*atthabhagiye*). The interesting fact which emerges from this event is that the king deals directly with the question of reduction in taxes. This would suggest that there was no intermediary or landowner else the reduction would have had to have been made in consultation with him and with his approval. This inscription further agrees with other sources in indicating that during the Mauryan period there were two sources of revenue from the land. One was the land tax which was based on the land itself and varied according to the quality of the land; the other was the tax on the produce which was arrived at through a regular assessment of the produce. Land tax as distinct from the tax on the produce may be compared to the later system of *bhaga* (deriving in all likelihood from the Vedic *bali*). Tax on the produce was probably the equivalent of the later *hiranya*, the tax on certain types of crops.

Emergence of a Mercantile Community

The establishment of the agrarian economy encouraged the organization of other activities such as trade. Here again the Ganges region was very suitable as the river provided transport. The development of trade led to the emergence of a mercantile community through a system of guilds. These were a predominant factor in urban life, and consequently introduced a new force into existing society. Specialization in work helped to consolidate the guilds. Both the increase in trade and the strengthening of the guilds was linked to the Mauryan system. In order to ensure

administrative efficiency, a considerable improvement was made in communications by the Mauryans. This enabled surplus production to be transported from one area to another. The clearing of forests and the establishment of new agricultural villages in these areas meant another source of demand for surplus production. The clearing of land facilitated communication. Half a century of peaceful relations with the Greeks in the west, under Bindusara and Asoka, allowed foreign trade with the Greeks to enter on a large scale as an economic activity of the time.

In the economy of northern India, the development of the guild system followed after the agrarian economy had come into operation, and this process was assisted by political conditions. This was unlike the establishment of the agrarian economy which was in itself responsible to a large extent for the political system. The centralized character of the state extended to interference in, if not actual control, over the activities of the guild. The craftsman or guild not only paid a tax on the goods they manufactured, but in some cases they also gave an additional tax to the State in the form of labour. There was a tendency to localize industry as far as possible. The guild could not move its premises or its location without the permission of the administrative authority, under whose supervision it came. The larger guilds appear to have dominated urban life. They even maintained their own body of soldiers but the king could always call upon these soldiers in case of need.

Income from trade and other commercial taxes of various kinds was not ignored by the Mauryan state. The scale of merchandize was strictly supervized by the state. The superintendent of commerce when valuing an article was to take into consideration not only the market value of the article but also other considerations such as the cost of transport from the place of production to the market, etc." Certain means of transport such as river transport were cheaper than others. Merchants handling foreign goods could claim a remission of trade tax, so that they could derive a profit from the sale of foreign goods and thus be encouraged to increase their trade. The trade tax consisted of one-fifth of the toll dues, and

these in turn were one-fifth of the value of the commodity. The merchant was allowed a maximum profit of five per cent on local produce and ten per cent on foreign goods. Profits in excess of this were confiscated by the superintendent of commerce and paid into the treasury." (It is possible that in periods of emergency when the state needed additional funds, the merchant may have been encouraged to ask for larger profits, since the surplus would in any case be confiscated by the state.) The control over prices and profits extended even to regulating the earnings of the middleman. It would seem that supply and demand were also regulated both within a particular area and concerning a particular commodity. But as it was not possible to calculate the total production and consumption, this attempt was a superficial one. A general tax was levied on merchandize when it was ready to go to the market, and this tax was paid by the producer. On most commodities this tax was one-tenth, though the amount varied in certain cases." Textiles of a particular kind were taxed at the rate of one-twenty-fifth whereas flowers and vegetables were taxed at one-sixth, the tax being assessed on the cost of production. The purchase of an article before it had been taxed was regarded as a punishable offence.

By the time of the Mauryan period the use of money, particularly for trade, was a fairly common feature. Some historians maintain that the symbols on the punch-marked coins of this time were the tokens of various large-scale traders. In any case, the use of money was an additional incentive to easier trade. Money lending was a familiar activity, although Megasthenes, failed to notice it. According to Kauṭilya even the treasury was permitted to lend money on interest. The normal rate of interest was 15 per cent. A special commercial interest (*vyavaharika*) of 60 per cent was also permitted. This extremely high rate was probably charged from merchants dealing with foreign trade and goods coming by sea. Transport of goods by ships carried a greater degree of risk than other forms of transport. It is possible that the State controlled the rate of interest and this may have led Megasthenes to report that there was no usuary in India. Money was thus available for commercial

transactions and the state itself encouraged these. Another aspect of the Mauryan economy which assisted in the-maintenance of the empire was the existence of slavery. Here again Megasthenes states that in India there are no slaves." This remark may have arisen from the fact that Megastbenes failed to recognize the Indian slave. Unlike Greek society of the time, Indian society was not divided sharply into the two categories of free citizen and slave. There were many more gradations, and even amongst the slaves there were various types almost conforming to a hierarchy. Theoretically it was possible for the slave to own property and furthermore, the *arya* could work temporarily as a slave. Neither of these possibilities were permitted under the Greek system.

Existence of Slaves

The existence of slaves is not only mentioned in the Indian sources but it would also appear that most of the labour power was provided by the slaves. The *Arthashastra* gives precise instructions for the clearing of land and the establishing of new villages. According to its author, the people sent to these new settlements should be either foreign immigrants or should be from over-populated regions. He adds that there should be a ratio of 500 *shudra* families to 100 other families. Naturally each settlement had to have a nucleus of various professions in order to make it self-sufficient in the early stages. The *shudra* families were responsible for cultivating the land. In the Kalinga Edict, Asoka refers to the deportation of 150,000 people from Kalinga. More than likely they were distributed among the new villages. Thus the *shudra* came under state control for food production. This production maintained a surplus in the treasury. The surplus was necessary, among other things, to pay the high salaries of the administrative officers and also to maintain a vast standing army. Forced labour (*vishti*) was also practised in Mauryan times. Megasthenes mentions that artisans worked for the state for a certain number of days in lieu of paying taxes. Kauṭilya refers to it and cautions the king against allowing his officers to misuse this right.

The hired labourers, referred to in the Asokan inscriptions as *bhatakas* and *karmakaras* were theoretically distinguished from the slaves (*dasas*). They were paid according to the amount of work they did and they were not owned by those who employed them. Hired labourers worked in rural areas as well as in the urban centres, but the most frequent reference to them is in the latter. The guilds and artisans appear to have employed them in large numbers. They were generally paid one-tenth of what they produced as wages. The social position of the hired labourers and the slaves was extremely low. Yet they were still a little better off than the very lowest in the scale, the outcastes. A slave could work as the domestic servant of a well-to-do master, but the outcaste could never be permitted such an occupation.

Revenue and Taxation

The existence of the Mauryan empire was therefore assisted by various factors such as the predominance of an agrarian economy, the utilization of land revenue and various forms of taxation, expansion in trade, the use of money and the use of slaves as labour. The Mauryan dynasty ruled for roughly a century and a half, though the political importance of the empire began to decline in the second half of this period. In considering the political disintegration of the empire it is useful to analyze the extent to which the economic activities of the time may have contributed to this disintegration. The view has been put forward that the decline of the empire was in large part due to a considerable pressure on the economy. This view is based on two arguments. First, that a number of taxes which are generally only demanded in periods of emergency are listed in the *Arthashastra*, as for example, the tax on actors and on prostitutes. Second, an analysis of the punch-marked coins of the Mauryan period shows a debasement in the silver content.

With regard to the first argument, it must be kept in mind that the realization of the full scope of taxation came about in the Mauryan period and there was an eagerness to tax wherever possible. Also, in order to maintain the necessary surplus in the treasury

there must have been few activities which were not taxed. But since the fact of taxing these activities was a recent one, this alone could not have led to a pressure so considerable as to lead to the collapse of the system. It is clear from the *Arthashastra* itself that this tax on actors, prostitutes, etc. was regarded as a legitimate tax, and not as an emergency measure. There is a separate section devoted to emergency taxations, should they be necessary, and the above-mentioned taxes are not included.

The argument concerning the debasement of coinage is more convincing. This, however, is a tentative argument, as the assigning of certain types of coins to the Mauryan period is not absolutely final. The coins being found in hoards, and seldom scattered on the site, makes it difficult to determine their provenance, and this in turn makes the analysis somewhat uncertain. The debasement of the coinage may also have been due to the increased use of silver for other articles, though such articles have not yet been found from excavations. It is possible that at the time of extreme political confusion during the reign of the later Mauryas, particularly in the Ganges valley, there may have been a tendency to hoard coins. This may have led to a debasement in the later coinage as compared to that of the earlier rulers.

According to Greek sources the land-tax was assessed at one-quarter and this is a high tax." But it is debatable whether this tax was uniform throughout the land. Similarly, the tax on the produce of the land is also said to be one-quarter. This figure may have been a rough estimate or may have referred only to the very fertile region around Pataliputra. It would seem that the precise amount varied according to local conditions. When indicating water-tax, the *Arthashastra* takes into consideration the type of irrigation provided. The method of assessing land-tax must also have considered various factors such as the fertility of the soil, the availability of water, etc. Most of the sources suggest one-sixth as the usual amount at later periods, though variations of one-tenth and one-twelfth were also known." That one-quarter was not the usual amount collected from the cultivator seems clear from the *Arthashastra*

which suggests that in periods of emergency, the king may increase the tax to one-quarter or even one-third.

Evidence from other material remains does not suggest a pressure on the economy. Archaeological evidence from the few Mauryan sites that have so far been excavated points to a period of an expanding economy. Comparisons can be made at pre-Mauryan, Mauryan and post-Mauryan levels of a site. Two such examples have been worked through fairly thoroughly at Hastinapura and Sisupalgarh, and other sites are still being excavated. These sites indicate that them was a considerable improvement in material culture during the Mauryan and post-Mauryan periods. Towns were built according to a plan and houses were well-constructed. Municipal responsibilities such as the drainage system were improved upon. There is a distinct improvement in the workmanship of objects such as beads, rings, terracottas, etc. Pottery, one of the most reliable pointers to the level of material culture, is superior both in quality and in technique. At earlier levels there is a wide distribution of the plain, black and the grey-and-red ware, both of which are wheel-thrown and made of finer clay, thus indicating better material and a more developed technique. Even the famous northern black polished ware increases in quantity at later levels (Sharma, 1953: 140-168; Lal, 1954: 5; Marshall: 91-101). All this points to a rise in the urban standard of living. The question of how far the Mauryan economy was responsible for the ultimate political disintegration of the empire can only be given a tentative answer. Evidence on this point from literary sources is not forthcoming. The answer can only be given a definite shape when many more Mauryan sites have been excavated and their results published. For the moment it may be said that there appears to have been a temporary pressure on the economy, which may have accelerated the decline of the empire, but the more fundamental causes of the decline must be sought elsewhere.

People Participation and State Control

A good deal of the economic life of the country, as has been already apparent, was controlled by the State. The State was the

largest employer of labour. It controlled and organised the agriculture, industry and the trade of the country. The State had a large part of the agriculture of the country directly in its own hands in its vast Crown estates. No doubt, it did not interfere in the actual work of cultivation, provided its established share of the produce was paid in as the land revenue demand, but it was specially the State's business to organise and extend the agricultural productivity of the country by schemes of colonisation, encouraging the surplus population to settle new or abandoned tracts, and also by assisting the emigration of foreigners to settle in the country.

The village

Each village, besides its area under houses (*vāstu*), had its full apparatus or agricultural life in its (1) *Kedāra* or fields sown with crops, (2) *Pushpa-Vāṭa*, horticultural gardens (3) Phala-vāṭa, orchards (4) *Shaṇda*, plantations of bananas, sugar-cane and the like; and (5) *Mulavapa*, fields for growing roots like ginger, turmeric and the like (*ārdrakdharidrādi*). Thus grains, flowers, fruits, vegetables, spices, sugar-cane and bananas were all grown in the village. The recorded and registered (*nibandha*) area of the village, after deducting from it the area covered by boundaries (*sīmāvarodhena*), was made up of the following parts: (1) cultivated (*kṛishṭa*) area (2) uncultivated (*akṛishṭa*) wastes, (3) high and dry ground (*Sthala*), (4) *Kedāra*, (5) *Arāma* (grove, *upavana*), (6) *Shaṇḍa* (*kadalyādi kshetram*, plantations of fruits like plantains), (7) *Vāṭa* (*ikshvādibhūmiḥ*, sugarcane plantations), (8) *Vāna* (as source of firewood for the village and other requisites), (9) *Vāstu* (area under houses), (10) *Chaitya* (sacred trees), (11) *Devagṛiha* (temples) (12) *Setubandha* (embankments), (13) *Śmaśāna* (cremation grounds), (14) *Sattra* (almshouse), (15) *Prapā* (store-house of drinking water), (16) *Puṇyasthāna* (holy places), (17) Vivita (grazing ground for village cattle), and (18) *Pathi* (area covered by roads).

The Pāli texts of the times also throw light on village planning on similar lines. First was the arable land of the village, beyond which lay its common grazing grounds or pastures [*Jātaka*, I. 388]

for its herds of cattle [III. 149; IV. 326] or goats [in. 401], whether belongings to the king [I. 240] or the commoner [I. 194, 388]. The villages employed a common neat-herd whose duty was to pen the flocks at night or to return them to their owners by counting heads [I. 388; III. 149]. He was called *Gopālaka*, the protector of the flocks [V. 350]. The pasturage was changed from day to day [Anguttara Nikāya, I. 20]. Beyond the pastures lay the groves at the outskirts, like the Veluvana at Rājagṛiha, the Añjanavana at Sāketa, or the Jetavana at Śrāvasti. Lastly came the uncleared jungles upon which the village could draw for its supply of fire-wood and litter [Jātaka I. 317; V. 10]. Examples of such forests were the Andhavana of Kośala, Sītāvana of Magadha, or the Prāchīna Vamsadāya of Śākya country, which are described as the haunts of wild beasts and brigands preying on caravan traffic passing through them [I. 99].

Villages are also described from the fiscal point of view as (1) *Parihāraka*, rendered revenue-free by royal favour as a gift, (2) *Ayudhīya*, paying revenue in the form of military service, (3) *Dhānya-pratikara*, paying land revenue in the form of grain, (4) *Pośupratikaro*, (5) *Hiraṇyapratikara*, (6) *Kupyapratikara* and (7) *Vishṭi-pratikara*, paying revenue in cattle (*e.g.*, cows for milk, bullocks for carrying load, sheep and goats for their wool); in gold, silver or copper; in forest produce and in labour, respectively [II. 35]. Among the crops grown in the villages are mentioned rice of different varieties; coarse grain (*kodrava*), sesamum (*tila*), pepper and saffron (*priyangu*); pulses like *mudga, māsha, masura, kulutha, yava, godhūma* (wheat),' *kalāya, atasī* (linseed), *sarshapa* (mustard); vegetables called *Śāka, Mūla*; fruits like plantains, pumpkins, gourds, grapes (*mṛridvīkā*); sugar-cane [II. 24].

Government Agricultural Farms

These model farms were of great use for the improvement of agriculture in the country. Seeds of various crops to be grown were collected here. Government had its own flower-, fruit-, and vegetable-gardens and undertook cultivation of commercial crops like cotton (*kārpāsa*) and jute (*kshauma*).

Agricultural Labour

There were landless agricultural labourers (*vishṭi*) who worked as domestic servants on the basis of free food and a little of wages in cash. There were also ordinary labourers (*Karmakara*) who worked for wages, and those who sold themselves into slavery (*Dāsas*). There were, lastly, agriculturists proper, or peasant proprietors, who worked on the basis of sharing of produce with the State, the State charging a sixth of the produce as its share or land-revenue demand. It may be noted that the Buddhist literature of the times holds up the ideal of the landlord cultivating his own land from which he should not divorce himself. It attaches a social stigma to the agricultural labourer or hireling who is ranked below the slave [*Dīgha Nikāya*, I, 51; *Anguttara Nikāya*, I, 145, 206; *Milinda Pañha*, 147, 331]. The *Jātakas* [*e.g.*, I, 339] deplore as a sign of social decadence the distressing sight of sturdy peasants leaving at home their own empty barns, and swelling the ranks of landless agricultural labourers to toil as hirelings on the estates of royal capitalists.

Cattle

The village cattle comprised cows, buffaloes, goats, sheep, asses, camels, pigs, and dogs (*Śunakāḥ* in XIV. 3) [V. 2]. The State maintain cattle-farms, stud-farms, and daily farms, and employed the necessary staff comprising the *Gopālaka* (cowherd), *Piṇḍāraka* (for buffaloes), *Dohaka* (milker), *Manthaka* (chuorer), together with the hunters (*Lubdhakas*) and keepers of hunting hounds [*Śvagaṇinaḥ* (II. 29, II. 34)] to keep the pasture grounds clear of wild animals. The cattle-farms reared calves, steers, draught oxen, stud-bulls, and buffaloes. It also undertook the taming of wild cattle. There was also poultry-farming [V. 2].

Irrigation

Irrigation was the concern of the State as an important source of revenue derived from the water-rates levied in accordance with the means of irrigation employed. It controlled the distribution of

water by sluice-gates. It was also responsible for constructing new sources of water supply by excavating tanks and canals. The Pāli texts of the times (specially the *Jātakas*) refer to the arable land of the village divided into individual holdings which are separated from one another by channels dug for co-operative irrigation [I, 336, IV. 167; V. 412 (Fausboll ed.)]. The cultivated fields of Magadha, which were thus divided by ditches, rectangular and curvilinear, are described by the Buddha as resembling his monks' uniform, a patch-work of torn pieces of cast-off clothing [Vinaya Texts, II, 207-9].

Village Public Works

A village had its full complement of public works of utility and social institutions. It had its *aramas* (rest-houses), *prapā*, (tanks), *sattras* (alms-houses), *puṇyasthānas* (holy spots), *chaityas* (trees tor worship), *deva-gṛihas* (temples), and its halls of public amusements such as music, dancing, theatrical performances (*prekshā*) and also for public dinners [pravahaṇa, III. 10]. There were also some structures for decoration of the village (*grāmaśobhāḥ*). These public works, as we have seen, were carried out by the joint enterprise and collective agreement (*samaya*) of co-operation among the villagers (*sambhūya*). Any one not making his contribution to such agreed communal undertakings would be fined.

Village Service

There were paid workmen in the service of the village. These were called Grāmabhṛitakas and included workers like the carpenter (*Kuṭṭaka*), the blacksmith (*Karmāra*, *Ayaskāra*), the potter, the inevitable barber (Nāpita) [II, 1; V. 2], and the washerman [V. 3]. A village had also its diggers (*Medaka*) and rope-makers (*Rajjuvartaka*). Grants of land without right of alienation were made to the following rural officers: (1) *Adhyaksha* (such as *Suvarṇaidhyaksha*) (2) *Samkhyāyaka* (the village accountant), (3) Gopa, (4) *Sthānika*, (5) Anīkastha (trainer of elephants), (6) *Chikitsaka* (physician proper), (7) Aśvadamaka. (trainer of horses), (8) Jamghākarika (courier) [II. 1].

Village Amusements

There were other workers to minister to the public amusements of the day, both in towns and villages. These were artists of various classes enumerated as follows: (1) *Naṭa*, (actor), (2) *Nartaka* (dancer), (3) *Gāyaka* (musician), (4) *Vādaka* (instrumentalist), playing on instruments like *vīṇā*, *veṇu*, and *mṛidanga*, (5) *Vāgjīvana* (rhapsodist), (6) *Kuśīlava* (dancing expert), (7) *Plavaka* (gymnast), (8) *Saubhika* (magician), (9) *Chāraṇa* (bard), (10) *Pāṭhaka* (reciter), (11) *Gandha-samyūhaka* (perfumer), (12) *Mālya-sampādaka* (garland-maker), (13) *Samvāhaka* (shampooer), (14) *Chitra-kāra* (painter), (15) *Vaiśika* (teacher of erotic) and (16) *Parachitta-jñānavid* (thought-reader) [II. 27]. All these were in the pay of the Government.

Rural Well-being

The duties of the State towards the village and its welfare are summed up to include (1) demarcation of properties (Setu), (2). opening up of inaccessible tracts of roads (*pathi-samkramāt*), (3) works of rural development (*grāma-śobhāḥ*) and protection (*rakshā*) [III. 10]. The protection of the village was in the hands of the rural police recruited from the classes called (1) *Vāgurikas* (trappers), (2) *Śabaras* (Bhils), (3) Pulindas (*Kirāta*), (4) *Chaṇḍālas* and (5) *Araṇyacharas* (foresters) [II. 1]. There was also a provision for the protection of a village by constructing a palisade (upasālam) of pillars built of stone or wood round it [III. 10]. The Jātakas also tell of the village being enclosed by a wall or stockade with gates (grāmadvāra) [I. 239; II. 76,135; III. 9]. The arable land of the village (*grāmakshetra*) was protected from pests, beasts and birds by fences [I. 215], snares [I. 143, 154], and field-watchmen [II, 110; IV. 277] about whom Kauṭilya gives full details. Thus village life was built up on the basis of private property, security of life and property, communications, and public works.

Uncultivated Wastes: Forestry

While cultivated lands were thus disposed of, the vast stretches of waste lands lying beyond the village (*akṛishyā bhūmiḥ*) were

utilized fully by the plantation of pastures (*vivīta*) for the grazing of the village cattle and of forests of different kinds. First came these grazing grounds, and then the woodland retreats for Brāhmanas for their study of the Veda and performance of Soma sacrifices (*Brahma-Somāraṇya*) and for hermits for doing penance in their *tapovana*. Beyond these lay the belt of forests. The first was the forest reserved for the king's hunt (*vihāra*) followed by the ordinary forests. These were of various kinds and were distinguished by their products such as *Dāru*, (timber), *Veṇu* (bamboo), *Vallī* (cane), *Valka* (bark), *Rajju* (fibres for rope-works); Patra (material for writing such as palm—leaves or bark of birch, *tāla-bhūrjapatra*); *Pushpa* (flowers for dyeing like *Kimśuka*, *Kusumbha* or *Kunkuma*); *Aushadha* (medicinal herbs), Visha (poisons) [II. 17], firewood, and fodder (*Kāsṭha-yavasa*). Specially favoured were the forests of elephants so necessary for war and of timber as building materials for towns and fortifications. Elephant forests were in the keeping of the Conservator called Nāgavanādhyaksha [II. 2]. The forests also yielded various animal products of economic value such as hides, skins, sinews, bones, teeth, horns, hoofs, and tails of creatures like leopard, tiger, lion, elephant, buffalo, yak, crocodile, tortoise, snake, and birds.

Forest Staff

The forests were under the Conservator called *Vanapāla*. There were also in the forest service persons known for their special knowledge of the properties of trees and the economic value of each of their parts (vṛksha-marimajña)[II. 17]. Then there were also the artisans who would work up the various forest products into their finished forms in the village factories (dravyavanakarmāntāḥ). They manufactured such necessary articles as plough, pestle, mortar, implements, weapons, and carts.

Industry: State Control. The State had a monopoly in many industries which depended on pioneering and costly enterprise. Mining industry was nationalised for its supreme importance to the State as primary source of its wealth (*ākara-prabhavaḥ kośaḥ*). The

mines worked by government are mentioned as those of gold, silver, diamond, gems, precious stones and of other inferior metals like copper, lead (*sīsa*), tin (*trapu*), iron (*tīkshṇa or ayas*) and bitumen (*śilājatu*). The State also explored the ocean mines in search of *muktā* (pearls), *śukti* (mother of pearl), *śankha* (conch-shell) and *pravāla* (coral). The State also worked the oilfields (yielding *rasa* like mercury). Minerals were also extracted from the earthy. The manufacture of salt was also a government monopoly worked under a system of licences granted to private lessees of salt-fields. There was a special officer called Khunyādhyaksha to look after the government business in pearls, conch-shells, corals, diamonds and precious stones. There was another special officer called *Sauvarṇika* in charge of gold and silver turned out in the State workshop called *Akshaśālā* [II. 13].

The State also had its cotton, oil, sugar, and dairy industries [II. 6]. The State reserved to itself the manufacture of wines and liquors and their sale. It also had a monopoly in armament industry and the building of boats and ships. The right of coining belonged to the State whose officers received from the public bullion to be shaped into coins on the basis of seignorage charges. The Mint Master was called *Lakshaṇādhyaksha*. The prisons had factories which employed penal labour. The State Spinning House was both a Spinning and Weaving Mill which manufactured yarns of cotton, silk, and jute; clothing; mail armour (*varma*); ropes; blankets (*āstaraṇa*); and curtains (prāvaraṇa). It employed the labour of women who were helpless and even supplied purdali women with orders for spinning yarn through its women-employees. Otherwise labour was employed on contract at the State factories. It was penal to hold back wages. Thus the State had to run its own factories and workshops for the utilization of the products of its own agricultural lands, forests, and mines, which were received and accumulated in the State ware-houses (*Koshṭhāgāra*). These accumulations were due to the system by which the dues of the State, its revenue demands, were paid not in cash (*hiraṇya*) but in kind, and called for a network of warehouses distributed throughout the country to

receive these goods. Thus the Factory came in the wake of the Warehouse.

Private Industrial Enterprise

The entire Industry of the country was, however, not in the hands of the State. A large field was occupied by individual private industry. While Kauṭilya naturally pays more attention to the former, other texts throw light on the part played by private enterprise in industry. The most important of these texts are the *Jātakas* on which craftsmen drew so largely for their themes treated in the early sculptures of Bharhut or Sanchi in the third and second century B.C. The *Jātakas* are documents of older history, as pointed out by Rhys Davids. They speak of eighteen chief handicrafts of the times, such as those of wood-workers, smiths, leather-dressers, painters, workers in stone, ivory-workers, weavers, confectioners, jewellers, workers in precious metals, potters, makers of bow and arrow. These handicrafts were also organised in guilds or craft-guilds called *Śreṇīs*, each under its President or Foreman called *Pamukha*, and the Alderman called *Jeṭṭhaka*. We are also told of federations of guilds under a common Head called *Bhāṇḍāgārika*. Like Industry, Trade also was organised in Merchant-Guilds whose chief was called *Seṭṭhi*.

Anāthapiṇḍika of Sāvatthī was a *Mahāseṭṭhi*, chief of a commercial federation controlling 500 Seṭṭhis, the heads of its constituent guilds. Caravan-traffic for its risks was carried on as a co-operative enterprise in which different traders with their carts, goods, and men formed themselves into a Company under a captain called *Sātthavāha* to give directions as to halts, watering, routes, fords, and danger-spots, and also other common officers or land-pilots called *Thalaniyyāmaka* who acted as guides and escorts against the dangers to travel from "drought, famine, wild beasts, robbers and demons." We are similarly told of sea-going merchants chartering a common vessel, or concerted action in freights between dealers, and of partnership concerns in business such as export of birds to Babylon, or of import of horses from the 'north' to Benares.

There was also localisation in Industry. We read of villages of potters, of wood-wrights, iron-smiths, or even trappers; while within the town were ivory-workers' street (*vīthī*), dyers' street, Vessas' streets or the weavers' quarter (*ṭhāna*). There were also the *hīnā-sippas* or despised callings which were segregated: those of hunters and trappers, fishermen, butchers, tanners; or snake-charmers, actors, dancers, musicians, rush-weavers, and chariot-makers who were mostly the aboriginal folks [*Hindu Civilisation*, pp. 301, 307, 308].

Trade

The State had a special responsibility in the matter of Trade. Its revenue depended upon a profitable disposal of the vast quantities of various goods which were constantly accumulating in its hands in its factories and workshops under circumstances described. The State thus became the biggest trader in the country, and had to control its entire trade to safe-guard its own interests. The control of trade was based on the State control of Prices. The system of control was based on certain inevitable provisions. Goods could not be sold at the place of their origm, field, or factory. They were to be carried to the appointed markets (*paṇya-śālā*) where the dealer had to declare particulars as to the quantity, quality and the prices of his goods, which were examined and registered in the books. Every trader had to get a licence for sale. A trader from outside had to obtain a passport in addition. The Superintendent of Commerce (*Paṇyadhyaksha*) fixed the whole-sale prices of goods as they were entered in the Customs House. He allowed a margin of profit fix the retail prices. Smuggling and adulteration of goods were severely punished. Speculation and cornering to influence prices were not allowed. Strikes of workmen to raise wages were declared illegal.

The State had to undertake a heavy and irksome responsibility in protecting the public, customers and consumers, against unauthorised prices and fraudulent transactions. It had to post an army of spies or market inspectors on the trade-routes to detect false declarations as to goods and apprize merchants of same

[II. 21]. Apart from the State control of prices was the State control of weights and Measures. The official standard was made a little lower than the public so as to provide a convenient source of revenue in the difference which amounted to a vyājī of 5 per cent. It was like the seignorage charge on the minting of coins. Trade was taxed all along its way by export and import duties, octroi and excise. Its progress through the country was punctuated by halts enforced for payment of taxes at different stages. The foreign merchants were mulcted of their profits on the frontiers, by road taxes (*vartanī*) and tolls, and by octroi at the gates of cities, which were carefully guarded by officers in charge of the Customs Houses provided even with a *dounane* and a place for detention for merchants evading the law. But if Trade was thus taxed, it received compensation in the protection assured to it in those olden days when life and property were not secure everywhere. The transit of goods was guarded all along its way. Any loss suffered in transit was to be made good by the Government officer in charge of the locality through which they passed. In the village, the responsibility was that of its head-man (*Grāma-Svāmī* or *Grāma-mukhya*); beyond the village; the Vivītādhyaksha; beyond his jurisdiction the responsibility was that of the government Police, the Chorarajjuka; and beyond him was *Sīmā-Svāmī*, the chief of the frontier.

Trade had to be protected in those days against the gangs of dacoits who were abroad (*chora-gaṇas*), the turbulent Mlechchha tribes (like the *Kirātas*) and the wild people of the forests (*Aṭavikas*) who were all out for plunder [VII. 10]. We have already referred to the rural police. But every village was directly guarded against thieves (*taskara*) by the hunters and keepers of dogs (*luhdhaka-svagaṇinaḥ*) already mentioned, whose method of dealing with them was to collect people by sounding alarm by conch shell or drum from a height, hill, or tree, unperceived, or by running fast to give information to the village [II. 34].

Trade-routes: Trade depended upon its routes, which presented a problem for a continent like India.

Grand Trunk Road: The Greeks tell of the Royal Road leading from the North West Frontier to Pāṭaliputra, the Grand Trunk Road of those days, with a length of 10,000 stadia=about 13,000 miles. [Strabo XV. 1, 11]. We have also seen how Megasthenes refers to Government officers in charge of roads and how signboards were set up at intervals to indicate turnings and distances. It may be noted that Megasthenes refers to the Royal Road from the North West to Pataliputra as the road existing in earlier times. As he entered India, Megasthenes was struck by this Royal Road leading from the Frontier to Pataliputra down which he must himself have travelled in prosecution of his mission. It is stated to have been constructed in eight stages, the distances between which were measured up to the Hyphasis (Beas) by Alexander's survey officers named Baeto and Diognetus, while the distances from the Hyphasis to the Ganges are supposed to have been measured for Seleukos Nikator by Megasthenes and other Greek visitors. These stages are thus described: 1. From Peukelaotis (Sans. Pushkalāvatī, the capital of Gandhara, modern Charsadda) to Taxila. 2. From Taxila across the Indus to the Hydaspes (Jhelum) 3. Thence to the Hyphasis (Beas) near the spot where Alexander erected his altars. 4. From the Beas to the Hesidrus (Satlej). 5. From the Satlej to the lomanes (Jumna). 6. From the Jumna via Hastinapura to the Ganges. 7. From the Ganges up to a town called Rhodopha (said to be Dabhai near Anupshahar). 8. From Rhodopha to Kalinapaxa (probably Kanyākubja or Kanauj). 9. From Kanauj to Prayāga at the junction of the Ganges and the Jumna. 10. From Prayāga to Pataliputra. 11. From Pataliputra to the mouth of the Ganges probably at Tamralipti. Every mile of the road was marked by a stone indicating the by-roads and the distances. The road was in charge of the officers of the P.W.D. who were responsible for its up-keep, repairs, and for erection of mile-stones and sign-posts at every ten stadia (Pliny, *Natural History*, VI, 21).

Buddhist Texts on Roads: The Buddhist literature of earlier times throws much light on the roads of traffic.

Inland Roads: The inland trade was carried on by carts and caravans. We read of Anāthapiṇḍika's caravans travelling south-east from Sāvatthī to Rājagaha and back (about 300 miles) [Jāt., i. 92. 348], and also to the "borders", probably towards Gandhāra [Ib., i, 377 f]. To ensure easy fording of rivers, this route must have passed along the foot of the mountains up to Kusinārā between which, and Rājagaha, lay halts at twelve intermediate stations (*gāmas* or *nagaras*) including Vesāli, with a single crossing of Ganges at Patna according to the recorded itinerary of the Buddha's last ministering journey [*Dīgha*, IT, *Suttanta*, XXI. 81. ff]. Another important route led south-west from Sāvatthī to Patiṭṭhāna (*Paithan*) with six intermediate halts [*Sutta-Nipāta*, 1011-13] and frequent crossing of rivers. We read of boats going up the Ganges to Sahajāti [*Vinaya Texts*, iii, 401] and up the Yamunā to Kosambī [Ib. p. 382]. There were no bridges in those days but only fording-places and ferries for crossing rivers [*Jāt*., iii, 228]. Manu speaks of cart-ferries [viii- 404 f.]. *Setu* was not a bridge but only an embankment.

A third route led west-wards to Sind, the home of horses and asses [Jāt. i, 124,178, 181,; ii, 31, 287], and to Sovīra [*Vimāna Vatthu* (Comm.), 336] and its ports, with its capital called Roruva [*Jāt*., iii, 470], or Roruka [*Dīgha*, ii, 235; *Divyāvadāna*, 544]. We read of overland Caravans going "east and west" [Jāt. 1, 98, f.], and across deserts requiring days to cross (the deserts of Rājputana), steering in the coolness of nights by the stars, under the land-pilot, Thalaniyyāmaka [Ib. 1, 107]. Beyond the western ports, merchants went "out of sight of land" into the ocean and traded with Bāveru (Babylon). Lastly, there was the great north-west over-land trade-route linking India with Central and Western Asia by way of Taxila and cities of the Gangetic Valley like Sāketa, Sāvatthī, Benares, or Rājagaha [Vin. Texts, ii, 174, ff.; *Mahāvagga*, viii, I, 6 ff.]. As a very frequented road, it was tree from dangers. We read of students travelling in numbers to Takkasilā, unattended and unarmed [*Jāt*, ii, 277], for education.

Sea-borne Trade: There is some evidence as to the sea-borne foreign trade of those days, though it is scanty. We read of Prince

Mahājanaka sailing from Champa for Suvaṇṇabhūmi [*Ib.* vi, 34 f.], of Mahinda from Pāṭaliputra to Tāmalitti and thence to Ceylon [Vin. iii, 388 (*Samaṇtapāsādika*)]. A whole-village of defaulting wood-wrights is described as escaping at night down the Ganges in a "mighty ship" from Benares out to the sea [*Jāt.* IV, 159], An accomplished helmsman brings safe by ships "passengers for India from off the sea to Benares by river" [*Ib.* ii, 112]. We read of traders coasting round India from Bhārukachchha to Suvaṇṇabhūmi [*Ib.* iii, 188], touching at a port of Ceylon on the way [*Ib.* ii, 127 ff.]. The cargo of a newly-arrived ship attracts a hundred merchants to buy it up [*Ib.*, i, 122]. The ships of the times were large enough to accommodate "hundreds" of passengers. We read of 500 traders on board ill-fated ships [*Ib.* 128; v, 75], and of 700 under the safe pilotage of Suppāraka [*Ib.*, iv, 138, ff] [*Hindu Civilization*, pp. 302-304].

Sanskrit Texts: The testimony of the Pāli Texts to the existence of an overland trade-route is confirmed by Pāṇini's mention of *Uttarapatha* [V. 1, 77]. He speaks of travellers going by *Uttarapatha* (*Uttarapathena gachchhati*) and of goods gathered by that route (*Uttarapathena āhṛitam*). According to Strabo, the river Oxus in the time of Alexander was quite navigable so that goods from India were carried down this river to the Caspian Sea on their way to the west. As Warmington points out [*Commerce between Roman Empire and India*, p. 21]; there were three natural approaches to India from the west:

1. where the mountains of Afghanistan become very narrow just north of the head of the Kabul river where only the Hindukush separates the basins of the Oxus, and the Indus;
2. 500 miles to the west and south-west, where the Afghan mountains end and open up an easy way over 400 miles of plateau from Herat to Kandahar and to Kabul, along the Helmund valley, and another way from south-east of Kandahar into the Indus lowlands through the Bolan or the Mūla Pass;
3. by way of the deserts of Makran or along the coast of Baluchistana.

The *Uttarapatha* of Pāṇini must have been the first or the second of above routes. It may be noted that Chandragupta Maurya's conquest of these regions by which the boundaries of his empire were practically extended up to Persia must have resulted in an increase of India's trade with the west along these routes. Within India, this overland trade-route (*Uttarapatha*) must have passed through and linked up her chief cities mentioned by Pāṇini and Patañjali, such as Bālhīka, Kāpaiśī, Pushkalāvatī Maśakāvatī, Takshaśilā, Śākala, Hastināpura Kośāmbī, Kāśī and Pāṭaliputra.

Patañjali (commenting on Pāṇini, II. 2, 18 and III. 3,136) mentions the formations, *Nish-Kauśāmbiḥ* and *Nir-Vārāṇasiḥ* in respect of travellers who have passed beyond Kauśāmbi and Vārāṇasī, thereby indicating the Grand Trunk Road of those days connecting the two cities of Kauśāmbī and Vārāṇasī. In connection with Pāṇini's rule, III. 3, 136, Patañjali instances the cities of Sāketa and Pāṭaliputra as lying on the same road so as to enable us to construct the length of a Grand Trunk Road that connected the two cities of Sāketa and Kauśāmbī, Vārāṇasī and Pāṭaliputrā. Curiously, the *Kāśikā* mentions Kauśāmbī as the starting-point of a journey instead of Sāketa mentioned by Pāṭanjali, though both retain Pāṭaliputra as the other end of the journey. "There may be a personal and psychological reason involved in this difference between the two grammarians. Each was perhaps thinking of his own native city forming the centre of his geographical horizon" [*Indian Culture*, II, 2].

The Arthaśāstra' on Roads: The *Arthaśāstra* follows in the wake of all this earlier evidence. According to Kauṭilya [VII. 12], Trade-routes (*Vaṇikpatha*) are to be established as ways of profit.

Water-ways: One view is that, of trade-routes by land, and by water, the water-route is preferable as yielding more profit on the ground that transport of goods by water costs less money and less labour (*alpavyaya-vyāyāmaḥ probhūtapaṇyodayaścha*). Kauṭilya does not agree to this view. In his opinion, water-route does not admit of any way to help in danger (*samruddhagati vipadi sarvato-niruddhagamanaḥ*). It cannot be used in all weathers (*asarvakālikaḥ*). ('such as rains'), is more exposed to risks, without remedies against

them. Kauṭilya classifies waterways into (1) ways along the coast (*Kūla-patha*), (2) ways through mid-ocean (to foreign countries) (*Samyāna-patha*). Of these, again, he prefers the former as a source of greater profit for its access to many port-towns (*Paṇyapaṭṭana-bāhulyāt*). The river is a third water-way. This also has some points in its favour. It is without break and not exposed to serious risks.

Roads of Traffic: As to land-routes, their broad division is into (1) *Haimavata*, or *Uttarāpatha*, the road which leads to the northern snows; (2) *Dakshiṇāpatha*.

Uttarāpatha: One view holds the Haimavata route better, as it gives access to more profitable things (*sāravattarāḥ*), such ay elephants, horses, the rare article *kastūrī* or musk (*gandhaḥ kastūrī*), ivory, skins, silver and gold.

Dakshiṇāpatha: But Kauṭilya, though a Northerner, stands up for the South. He says that 'if the southern route does not lead to countries from which come blankets (*kambala*), skins, or animals like horses, it brings in far more valuable products like conch-shells, diamonds, gems, pearls and gold. The southern road, moreover, leads through many mines (*bahu-khaniḥ*) and lands yielding valuable commodities (*sārapaṇyaḥ*), and does not mean risky or difficult travelling' (*prasiddhagatiḥ alpavyāyāmaḥ*). On the same ground of profit, Kauṭilya wants the State to provide the country with roads for cart-traffic (*chakra-patha*) by which much merchandise can be always carried (*vipulārambhatvāt*). He also recommends the tracks for beasts of burden like asses and camels.

Different Classes of Roads. Kauṭilya [II. 4] speaks of various classes of roads in the country such as:

1. *Rāja-mārga*, or the king's way, highway;
2. the provincial roads leading to different administrative head-quarters such as *Sthānīya-patha*;
3. *Droṇamukha-patha*;
4. *Rāshṭra-patha*, leading to the rural areas; or
5. *Vivīta-patha* leading to the pasture lands on the country side; and ether classes of roads called

6. *Samyānīya-patha* leading to market towns (*Samyānīyam kraya-vikraya-vyavahāra-pradhānam paṭṭanam tatpathaḥ*).
7. *Vyūhapatha*, the path for the army;
8. *Setupatho* leading to irrigated fields;
9. *Vanapatha*, the path to the forests;
10. *Hastipatha*, the path for elephants;
11. *Kshetrapatha*, leading to cultivated fields;
12. *Rathapatha*, the road for chariots;
13. *Paśupatha*, the track for cattle;
14. *Kshudrapashupatha*, the track for smaller animals like sheep etc; and lastly;
15. *Manustiyapatha*, the path for men.

Merchandise: All these various roads brought to markets commodities of different kinds from all parts of the country from which they were derived, from out of the way places like mines and forests.

Pearls: For instance, pearls of different varieties came from distant places like the Tāmraparṇī river in the Pāṇḍya country, at the place where the river falls into the sea Pāṇḍya-Vāṭaka, the hill known as Malayakoṭi Parvata; the river Pāśikā near Pāṭaliputra; the river known as Kula in Ceylon; the river Chūrṇī in the Kerala country; the hill called Mahendra; the river called Kardamā in Persia; the river Srāutasī; the lake (*hṛada*) known as Śrīghaṇṭa; and the Himalayas (*Hemavata*).

Gems: Gems (*Mani*) were gathered in from the mountains known as Koṭi and Mālā and from the hill called Rohana in Ceylon.

Diamonds: Diamonds came from Sabhārāshṭra, the name of the Vidarbha country; Madhyamarāshṭra which is the Kosala country; Kāstīra-rāshṭra; the hill called Śrīkaṭana; Maṇimantaka, a hill in the *Uttarāpatha*; and Indravānaka, a hill in the Kalinga country.

Corals: Corals were obtained from the place called Alakanda, a sea-port in the lands of the Barbaras; Vivarṇa, a place on the beach in the island of the Yavanas.

Fragrant Woods: There was trade in fragrant woods like sandal (*chandana*), aloe (*agaru*) of or *kāleyaka*. Most of these were the products of Kāmarūpa or Assam.

Skins: There was a large trade in skins of different kinds derived from places like Kāntanāva and Preya which are the regions of the Himalayas (*Uttaraparvata*). Skins of varieties called Bisī and Mahābisī came from twelve noted Himalayan villages inhabited by Mlechchhas (*Dvādaśagrāmīye*). Various kinds of skin came from another Himalayan region known as Aroha. Another country on the Himalayas named Bāhlava was the source of other varieties of skins. Lastly, there was trade in the skins of aquatic animals.

Blankets: There was considerable trade in blankets of wool. Nepal is mentioned as a source of good blankets; of rain-proof (*varshāvāraṇam*) blankets made up of eight pieces joined together and of black colour, known as Bhingisi; as well as blankets known as Apasāraka.

Silk. The *dukūla* (white silk garments) came from Vanga; Puṇḍra in northern Bengal supplied the stuff called *Paūṇḍraka*, while the place called Suvarṇakuḍḍa in Assam was also known for its sills.

Linen. Kshauwa or Linen came from the country called Kāsī, and from Puṇḍra. Fibrous garments (*Patrorṇāḥ*) were the products of Magadha, Puṇḍra, and Suvarṇalukuḍḍa. Of the same kind are the garments known as *Kauśeya* (produced in the country called *Kośakāra*) and Chīnapaṭṭa (*Chīnabhūmijaḥ*). V.R.R. Dikshitar proposes to identify *Chīna* with *Shina*, a Gilgit tribe known for its manufacture of silk.

Textiles. Cotton fabrics (*Kārpāsikam*) of the best quality were produced at the following places: Madhurā, the capital of Pāṇḍya country; Aparānta (Konkana): Kalinga; Kāśī; Vanga; Vatsya; Māhishmatī, the capital of Kuntala country.

Urban Life: Urban life had its own amenities like life in a village. These were offered by a number of institutions of different kinds. Every city had its rest-houses for travellers (*Dharmāvasathas*), its factories where worked its artists (*Śilpī*) and craftsmen, its shops,

its vintners (*Śauṇḍikāḥ*), its restaurants offering meals of cooked meat (*pakkvamāmsa*), rice (*odana*), and cake (*āpūpa*), and its taverns (*pānaśālā*). It had many public amusements like theatrical performances (*prekshā*), music, vocal, and instrumental, exhibition of acting, dancing, jugglery (*chakra-chara*), sorcery (*kuhaka*), story-telling, rhapsody, gymnastics, painting and the like, which were all given by its various classes of artists trained in its Schools of Art maintaned by the State [II. 36; II. 27; IV, 4].

The city's learning and culture were represented by persons noted for their knowledge, their oratorical gifts, their spirituality, who were all given the highest honours and allowances for their maintenance (*Vidyā-Vakya-Dharma-Śūra* [XIII, 5]. We have already seen how religion and learning were endowed by grants of land made tax-free and in perpetuity (*adaṇḍa-karāṇi abhirūpadāyakāni*) by the State to their votaries named (1) *Ritvik*, (2) *Achārya*, (3) *Purohita* and (4) *Śrotriya*. [II. 1]. The State also bestowed stipends of honour (*pūjā-vetanāni*) upon the teachers of music (*Achāryāḥ Gandharvāchāryāḥ*) and the men of learning (*vidyāvantaḥ*) in the city whose services were always at the disposal of the public (*sarvopasthāyinaḥ*). The stipends were granted in accordance with merit (yathārham) [V. 3].

Coins: The Maurya empire was based upon a money-economy. The literary references to the use of coins are older than their actual finds. The Vedic term for a coin is taken to be *Nishka Rv*. I, 126, 2]. The *Bṛihadāraṇyaka Upanishad* speaks of a gift made to Yājñavalkya in the form of five *pādas* of gold with which the horns of 1000 cows were hung, a total gift of 10,000 *pādas*. Weights of gold and probably a gold currency are indicated in such terms as *Ashṭāprud* [*Kāṭhaka Samhitā*, Chapter XI, 1,] or *Śatamāna* defined as "a weight of 100 *krishṇalas*" [*Śatapatha Brāhmaṇa*, V. 5, 5, 16]. The *Śatpatha* [XII. 2, 3. 2] also refers to payment of sacrificial fee in terms of gold (*hiraṇya*). whether *Suvarṇa* or *Śatamāna*.

We also read of gold (*hiraṇya*) being obtained from the beds of rivers like the Indus [*Rv*. X, 75, 8], or extracted from the earth [*Av*.

XD, 1, 6, 26. 44] or from ore by smelting [*Śata Br.* VI, 1, 3, 5] or from washings [*Ib.* II, 1, 1, 5].

Pāṇini (*c.* 500 BC) in his Grammar testifies to the continued use of some of these Vedic terms for coins. He knows of the gold coins *Nishka*, *Śatamāna* and *Suvarṇa*. Things valued in terms of *Nishka* are called *Naishkika*, *Dvinaishkika*, and so forth [V. 1, 20; 30]. A man of 100 *Nishkas* was called a *Naishka-Śātika*, a man of thousand a *Naishka-Sāhasrika* [V. 2, 119]. An article bought for a *Śatamāna* is called a *Sātamānam* [V. I, 27]. It is interesting to note that Mr. Durga Prasad of Varanasi who had specialised in the study of punchmarked silver coins and handled thousands of them so far discovered, ascertained that 39 silver coins which were found in the earliest layers at Taxila weighed 100 *rattis* each =180 grains. These corns cannot be taken to be the double Persian *sigloi* mentioned below, for the Persian *sigloi* weighed not more than 36.45 grains and a double weighed 172.9 grains. They, therefore, are to be taken as indigenous coins called aptly *Satamāna* coins in our texts. It may be further assumed that weights of these coins followed a decimal system. The *Śatamānas* had their *Pādas* which may also be identified with certain broad pieces punched with 4 symbols and weighing 25 rattis or 1/4 of *Śatamanas*. Pāṇini also refers to objects valued ill terms of *Suvarṇa* taken as a coin [IV. 3, 153; VI. 2, 55]. He also knows of a gold coin *Sāna* [V. 1, 35], In the *Charaka-Samhitā* (Kalpa-Sthāna, XII.89) 1 sāṇa = 4 *māshas*. Kauṭilya, as we have seen [II. 14], takes 1 Suvarna=16 Māshas and a *pāda* of *Suvarṇa = 4 māshas*, the equivalent of a *Sāṇa*.

The *Kārshāpaṇa*, the established coin of ancient India, is fully known to Pāṇini who refers to transactions made in terms of money taken to be the *Kārshāpaṇa* [V. 1, 21; 27; 29, 34]. He also knows of 1/2 (*ardha*) and 1/4 (*pādā*) as denominations of *Kārshāpaṇa* [V. 1. 48: 34]. Kārshāpaṇa, as the standard coin, was in silver. Kauṭilya uses the form *paṇa*. Pāṇini again knows of the small coin called *Māsha* [V. 1, 34]. Kauṭilya takes *Māsha* as 1/16 of *Kārshāpaṇa*, and as a copper coin [II. 19]. It would be too small in size in silver, though even some specimens of the silver Māsha have been found

at some places like Taxila. Therefore, as a copper coin, it admitted of smaller denominations known as 1/2 *Māshaka*, 1 *Kākaṇi* = 1/4 *Māsha* and 1/2 *Kākani* = 1/8 *Māsha*. *Kākaṇi* and *Ardhakākani* are known to Kātyāyana [*Varttika* on V. 1, 33] and also to Patañjali. Pāṇini also uses the term *Vimśatika* in terms of *Kārshāpaṇa* of twenty parts. This coin was in circulation in the country in some parts, along with the *Kārshāpaṇa* of 16 parts, as known to *Kauṭilya*.

It appears that Mr. Durga Prasad found coins weighing 40 and 60 *rattis* corresponding to 20 and 30 *Māshas*, 1 *Māsha* being = 2 *rattis* of silver. These coins may thus be taken as examples of coins called aptly by Pāṇini *Vimśatika* and *Trimśatika* coins as known in his day. It may be noted that the *Vinayapiṭaka* [*Aṭṭhakathā*. II *Parājika*] furnishes the information that "at that time (of Bimbisāra or Ajātasattu), at Rājagaha, there was in circulation the *Kārshāpaṇa* of twenty *Māshakas* (*Vimsatimāsako Kahāpaṇo*), whence the *Pāda* was five *Māshakas*. Buddhaghosha in his *Samantapāsādikā* dubs this coin as *Nīlakāhāpaṇa* and further states that the coin in circulation in the capital of the empire became the current coin in all its provinces (*Sabbajanapadeshu*). It is also stated that the coin was fashioned in accordance with the specifications of the old technical numismatic Sastra (*Purāṇa-Śāstra*) [Chatterji, 384-386].

Patañjali refers to the *Kārshāpaṇa* of 16 *Māshas* as being older (*purākalpa*) than the one of 20 *Māshas* with which he was apparently more familiar, Kauṭilya knows of this older *Kārshāpaṇa* as the standard of his days but refers to another silver coin called *Dharaṇa* of 20 parts [on. Pāṇini I. 2. 64]. Both varieties of *Kārshāpaṇa* seem to have been in circulation in different local areas in the country. It may be noted that the Buddhist tradition cited above regards the coin of 20 *Māshas* as being older than that of 16 *Māshas*. Thousands of actual examples of the silver *Kārshāpaṇa* have been found in different parts of India and are designated now as punch-marked coins. Their average weight is 32 *Raktikās* = 56 grains. This agrees with the standard mentioned by Kauṭilya, Manu [VIII. 136] or Yājñavalkya I. 364] and also in Sāratthadīpanī where the weight of

a '*Rudradāmaka*' coin = 42 grains is stated to be 3/4 of a *purāṇa* (old) *Kārshāpaṇa* [*Buddhistic Studies*,Ibid.].

Pāṇini uses the term *rūpa* [V. 2, 120] and explains the formation *rūpya* as 'beautiful' or 'stamped' (*āhata*). The latter sense applies to a coin. The *Arthaśāstra* takes the term *rūpa* in the sense of a coin alone and mentions an officer known as *Rūpadarśaka*, 'the examiner of coins,' as we have already seen. It is interesting to note that Patañjali in commenting on *Vārttika* on Pāṇini's sutra, I, 4, 52, refers to a *Rūpatarka* 'who examines (*darśayati*) the *kārshāpaṇas*'. It may be also recalled that Kauṭilya uses the terms *Rūpyarūpa* and *Tāmrarūpa* for silver and copper coins.

We shall now turn to the actual specimens of ancient Indian coins discovered so far. The oldest variety has been found in the parts of India in the northwest which belonged to the Achaemenian Persian empire in the sixth and fifth century BC. Some of these coins were found in an early layer at Taxila along with a gold coin of Diodotus (250 BC), and, in another stratum, with the coins of Alexander the Great, looking "fresh from the mint," and one Achaemenid *siglos* of the 4th Century BC. These weigh, as we have seen, 100 ratia =180 grains on as average. The *sigloi* weighs 86.45 grains, while the Attic standard = 67.5 grains. These coins are "thick, slightly bent bars of silver, stamped with wheel or sunlike designs resembling the 6 armed symbol to be seen on the later punch-marked silver coins, while they form only a single type" [Allan, *Catalogue of the Coins of Ancient India*, xv. xvi]. It was probably these pieces in which Ambhi, the king of Taxila, had paid to Alexander his present of what the Greek writers describe as "80 talents of coined silver" [Curtius, VIII. 12, 42]. According to Durga Prasad [JRASB, Nunusmatic Supplement, XLVII, p. 76], these older per-Maurya coins are struck on a standard of 100 *rattis* as against the later Maurya coins of standard 32 *rattis* weight. This confirms the truth of the *Vinayapiṭaka* that the older *Kārshāpaṇa* of 20 *Māshakas* was of lesser weight.

Next, a hoard of coins was found at a deep stratum in Golakhpur at the site of ancient Pāṭaliputra. These are taken to be the earliest

known punch-marked silver coins and to be pre-Maurya, perhaps, Nanda, coins. They bear a pre-Maurya symbol, 'the hare or dog on hill', which may be taken as the Nanda symbol. It may be noticed that many of these were punched by the Mauryas with their own symbol to make them 'legal tender,' or *kośa-praveśya*, as Kauṭilya calls them, as contrasted with the coinage current among the public for purposes of business transactions and aptly called by Kauṭilya *vyavahāriki paṇya-yātrā*, as we have already seen. We may recall that the *Kāśikā* mentions a tradition about Nandas inaugurating a royal measure (*Nandopakramāṇi mānāni*) [II. 4, 21; VI. 2,14], while their proverbial wealth as mentioned in literature may be due to their new coinage and currency system.

Following the Golakhpur find in the chronological order is a vast body of silver punch-marked coins found in thousands in different parts of India, from Panjab to Malwa, and from C.P. to the Deccan and up to Madras and Mysore. These may be grouped under six classes in accordance with the variations in their symbols and marks. Yet they are all struck on a common standard, that of 32 *rattis* = 56 grains, like the *paṇa* or *dharaṇa*. Another common feature they present is that "they have regularly on one side a group of five punches found in a great variety of combinations, and on the reverse have one or more punches, normally different from those found on the obverse" [*Ib.* xiii]. The five punches on the obverse show figures of (1) Sun, (2) Circle with 6 arms, 3 arrow-heads, and 3 taurine symbols, (3) Mountain, (4) Peacock, dog (or rabbit), or tree on a hill, (5) Animals, such as elephant, bull, dog seizing a rabbit, rhino, and even fishes and frogs, and, in some cases, sacred tree within a railing (perhaps a mark of Buddhist influence which was so widespread in the time of Asoka Maurya) [*Ib.* XX f.].

The symbols on tike reverse of these coins are only the marks of punching made by authorities and shroffs in checking them. It may be assumed that the larger the number of these punch-marks, the older must be the coins. This may supply a due to the dating of these coins. It may be noted that Kauṭilya's Mint-Master called

Lakshaṇādhyaksha was in charge of the *Lakshaṇas* to be imprinted on the imperial coins. Coins in circulation had also to be checked from time to time and this was done by the *Rūpadarśaka* who punched his test marks each time on them. This means increase in the number, of these teat marks on the reverse, of which the maximum has been found to be 14 so far. Coins bearing larger number of marks appear to be older and more worn out.

It is difficult to comprehend fully the meaning of these symbols and punch-marks. That they have a meaning is indicated by Buddhaghosa who mentions in the *Samantapāsādika* the ancient numismatic treatise known as *Rūpasutta* as stating how a moneyer (*Heranñako*) could spot the village, the *nigama* or the *nagara*, and even the mint where a coin was manufactured, in the light of its marks, and whether it was 'on a hill or on the bank of a river" (*nadītīre vā*). These puzzling punch-marks Buddhaghosa describes as *chitta-vichitta*, of various designs and forms. The mother of the boy Upāli was full of fears that his eyes would be spoilt, if he chose the profession of a shroff [*SBE*, xiii. 201, f]. Indeed, all eyes would suffer to this day if applied to find out the meaning of the bewildering punch-marks borne by these ancient Indian coins to which the key is lost in the absence of the old *Rūpasuttas*!

Of the six Classes into which these coins are grouped, it is to be noted that Classes 2 and 6 are more closely connected and taken to be Maurya on grounds explained below. Indeed, a careful examination of the various symbols and marks borne by these numerous punch-marked silver coins found in so many parts of India, together with the evidence that they were in circulation in the country in the fourth, third, and second centuries BC, suggests the conclusion that they were "the coins of the Maurya Empire." "That these coins were issued by a government authority and not by private individuals, there is not the slightest doubt. Only a central authority could have carried out such an apparently complicated, but no doubt—if we had the clue—simple, system of Stamping the coins in regular series. "The regular recurrence of five symbols on the obverse naturally suggests a Board of Five, such as Megasthenes

says was at the head of most departments of Mauryan administration. It can hardly be that the symbols are those of the five officials actually concerned in the issue of each piece, as some symbols like the sun and the six-armed symbol occur over a wide range of coins. The punches, though not struck with one disc, were struck at one time. They may represent a series of officials of diminishing area of jurisdiction. The last and most frequently changing symbol would represent the actual issuer of the coin. The constant symbol, the sun, would represent the highest official, perhaps the king himself, and the next commonest, the various forms of six armed symbol, the highest officials next under him" [Allan,l*bid*., Ixx, 1xxi].

The Maurya connection of these coins is perhaps further attested by the figure of the *peacock* on a hill common on the coins of Group II under Class 2 and also on Group IV of the same Class, where it appears both on obverse and reverse. The peacock, as has been pointed out above, was the dynastic symbol of the Mauryas. We may also note that of all the animals portrayed on the coins, the elephant is the most prominent as the principal factor in Mauryan military strength.

Durga Prasad considers that the figure of 'Hill-with-crescent-on-top' was a specific Maurya symbol, apart from the peacock. This symbol, he points out, appears on most silver coins found all over the country, and also on known Mauryan Monuments (as mentioned above). It also appears on the base of the Maurya pillar recently excavated at Kumrahar in Patna. It is seen on the Sohagaura copper-plate of c. 320-300 BC bearing an inscription which states that at famines, grain was distributed from public granaries, a provision also mentioned by Kauṭilya, as we have seen. Lastly, the symbol appears on a seal on three terracotta plates recently discovered at Bulandibagh at Mauryan level at the site of old Pāṭaliputra, along with three other symbols. Jayaswal agreed with Durga Prasad in taking the seal to be the Maurya imperial seal, the *Narendrānka*, by which, according to Kauṭilya, royal properties like weapons [V. 3] or cattle [II. 29] were marked [Jayaswal's Presidential Address to the Oriental Conference at Baroda, 1933]. Durga Prasad also makes

the ingenious suggestion that where a coin bears on the *reverse* this Maurya symbol of a Hill-with-crescent-on-top or a peacock, it is to be taken as a pre-Maurya coin which was restruck by the Maurya kings [*Ibid. Num. Sup*. p. 67 f].

As has been already stated, of the six Classes into which the above type of coins are grouped. Classes 2 and 6 are taken to be Maurya. "Their composition is almost every where the same," though they are very different in style and fabric, Class 2 consisting of small thick pieces and Class 6 of large thin pieces. Yet the constant association of these two Classes is surprising. It has been found that these two Classes of coins "circulated together thick Peshawar to the mouth of the Godāvarī, and from Palanpur in the west to Midnapore in the east." The distinction between them is not one of place. The same authority must have issued them as current coins in all the localities under the control of that authority. "The authority that issued these coins must have ruled the Ganges valley, the upper Indus valley, thrust its way up the tributaries of *Jumna* to the west, and come along the east coast through Orissa and penetrated far into the Deccan. This is what the find-spots suggest" [Allan,lbid. 1v, 1vi]. The find-spots also agree with the distribution of Asoka's inscriptions and thus point unmistakably to the Maurya empire as the authority that issued the coins of these two Classes which are found to be so closely connected.

Foreign Coins: Since a part of the Panjab came under the dominion of the Achaemenian (Hakhāmani) Emperors of ancient Persia, it was natural that their money must have come into India in the wake of their conquest. But it is not easy to prove it by actual finds of Persian coins in India. The standard gold coin of ancient Persia was the Daric, weighing about 130 grains, probably first minted by Darius who first annexed to his empire the valley of the Indus. This coin is marked by the portrait on its obverse of the great king, armed with bow and spear, in the act of marching through his dominions.

The gold coin of Persia could not, however, obtain wide circulation in India for an important economic reason. India was

known for its abundance of gold, so much so that its value relatively to silver was very low, as low as 1:8 as compared with the ratio of 1:13.3 maintained by the Imperial Persian Mint. Therefore, the *Darics* that would find their way into India appeared to be an artificially inflated currency and would find no place in the India currency system, and would be exported at once. There was no profit in holding such *Darics* in India when they could be exchanged for more silver elsewhere. Therefore, Persian gold coinage has not been found in any appreciable quantity in India.

As regards the corresponding Persian-silver coinage, it consisted of what were called *Sigloi* or *Shekels* of which twenty were equivalent to a *Daric*. They weighed about 86.45 grains. Such silver coins would find their way into India where they had more value and would buy more gold. Many *sigloi* coins have been found in India with peculiar counter marks closely resembling those found on the square pieces of silver constituting India's oldest native punch-marked coinage. The Persian *sigloi*, however, did not long survive the overthrow of Darius III by Alexander.

The Persian conquest of the Panjab was followed by the so-called Greek conquest, which was short-lived. The effect of Alexander's campaigns in the Panjab was only to unify the country all the more. Smaller principalities were brought together in the larger kingdom which, was Alexander's gift to his whilom adversary, Poros. Another consequence of the pressure of the foreign invasion was the formation of the confederacies of free peoples already described. These unities, as we have seen, paved the way of Chandragupta Maurya in building up his great Empire. It is not easy to ascertain how far the currency of India was at all affected by this Greek contact. The disappearance of the Persian *Sigloi* from the field after Darius IV no doubt opened the way to Greek influence. But it was slow to show itself. Imitation Athenian 'owl' coins first appeared in the period of Macedonian ascendancy, but the specimens at the British Museum from Rawalpindi were not of Indian but central Asian origin.

Nor is the Indian provenance established for the Greek coins found in India, whether *tetradrachms* or *didrachms* or *drachms*. The proper Greek *drachm* minted on the Attic standard weighs 67.5 grains, whereas the *drachm* found in India weighs not more than 58 grains. Further, in these smaller denominations of coins, whether *drachms* or *diobols*, the Athenian owl is replaced by eagle. A find of a series of silver *drachms* of Attic weight made in the Panjab by Cunningham perhaps proves that the smaller Athenian imitations were known in the north of India. Their obverse shows the head of a warrior, wearing a close-fitting helmet, wreathed with olive, while the reverse shows a cock and a caduceus symbol. These coins give an impression that they were designed after an Athenian prototype. These are supposed to have been the issues of king Sophytes or Saubhūti, and, if so, these coins form a memorial of Alexander's invasion of India. It is doubtful whether Alexander as conqueror had issued any money of his own in India. Some coins bearing the name of Alexander have been classed as Indian, of which the best example is a bronze piece. But it is doubtful whether their provenance is India. Even a number of silver *tetradrachms* showing Zeus and eagle and the significant satrapal tiara which were found at Rawalpindi were of Central Asian origin. The later issues of these coins were those of Antiochus I who had no connection with India after the defeat of his predecessor, Seleukos, by Chandragupta Maurya.

It is to be noted that these pieces do not bear the king's title. But both title and name appear on an extraordinary silver *decadrachm* of Attic weight now in the British Museum. Its obverse shows a horse-man, with lance at rest, charging down upon a retreating elephant carrying on its back two men who are turning round to face their pursuer. Its reverse shows a tall figure, wearing cuirass, cloak and cap, with a sword hanging by his side and holding a thunderbolt and, spear. This figure is supposed by Head to be the figure of Alexander himself. Head interprets the obverse to represent the retreat of Poros, one of whose companions on the elephant, the rear-most one, wields the lance aimed at the pursuing horseman. It

is Paurava mounted on the State elephant at the Battle of the Hydaspes and aiming his javelin at Ambhi, the traitor king of Taxila, galloping after him on horse. The story is thus told by Arrian (Chap. XVIII): "Taxiles, who was on horseback, approached as near the elephant, which carried Poros, as seemed safe, and entreated him, since it was no longer possible for him to flee, to stop his elephant and to listen to the message he brought from Alexander. But Poros, on finding that the speaker was his old enemy, Taxiles, turned round and prepared to smite him with his javelin, and he would have probably killed him, had not Taxiles instantly put his horse to the gallop and got beyond the reach of Poros."

Town-Planning, Architecture, and Art. According to the Greek writers, the Panjab in those days was full of towns which were no doubt the centres of industry and economic prosperity. Many of these figure as forts or centres of defence, such as the famous Massaga (Maśakāvatī) or Aomos (Varaṇā) in the country of the Aśvakas already referred to. The free clan called the Glaussai had as many as 37 towns in their territory, while there were as many as 5,000 towns in the territories of the other peoples, the Malloi, Oxydrakai, and others. "The smallest of these towns contained not less than 5,000 inhabitants, while many contained upwards of 10,000. Some of the villages were not less populous than towns" [McCrindle's *Invasion of India by Alexander*, p. 112]. According to Strabo [*Ib.*] in the territories of 9 nations between the Jhelum and the Beas there were as many as 500 cities. Taxila was "a great and flourishing city, the greatest, indeed, of all the cities which lay between the Indus and the Hydaspes" [Ibid., p. 92].

Some of the cities were remarkable for the design shown in town-planning and architecture and for the strength of their fortifications. Massaga, for instance, was built up as a fort commanding great natural advantages on an eminence inaccessible on all sides against steep rock, treacherous morass, deep stream, and a rampart guarded by a deep moat to boot. The rampart was "35 *stadia* (=about 4 miles) in circumference, with a basis of *stone-*

work supporting a superstructure of unburnt, sun-dried bricks. The brick-work was bound in a solid fabric by means of stones".

The fortress of Aornos was similarly constructed on a high hill, with its water-supply arranged by tapping a local spring, and food grown with the labour of a thousand men in an adjoining field to render the fort self-sufficient against a siege. It is stated that these forts were possessed of fortifications and battlements which were so strong that Alexander had "to bring up military engines to batter down their walls" [*Ib*. p. 67]. The Kathaians had a strongly fortified city called Sangala with its walls made of brick [*Ib*. p. 119].

The Malloi had also many walled cities with citadels on commanding heights and difficult of access. Alexander had to apply scaling ladders on all its sides and to undermine its walls. The walls had towers at intervals. In scaling the walls, Alexander was assailed from every side from the adjacent towers. Bars closed the gates of the wall between the towers [Ibid.: 145-149]. Megasthenes makes the following general statement on the cities of Maurya India: "Of their cities, it is said that the number is so great that it cannot be stated with precision, but that such cities as are situated on the banks of rivers or on the sea-coast are built of wood, for where they are built of brick they would not last long—so destructive are the rains, and also the rivers when they overflow their banks and inundate the plains. Those cities, however, which stand on commanding situations and lofty eminences are built of brick and mud" [McCrindle, 209]. The description of the above cities and also of Pāṭaliputra bears out the truth of these remarks.

Further light is thrown on Town-planning by the Pali texts of the times. An older city of Magadha was old Rājagṛiha known as Girivraja which was the capital of emperor Bimbisāra (c. 603-515 BC). The *Mahābhārata* refers to Girivraja as the capital of the much older king Jarāsandha of Magadha, and describes it as being protected by five hills which are still traced, the hills called Vaihāra, Varāha, Vṛishabha, Rishigiri, and Chaityaka. The famous Sattapaṇṇi cave where was held the first Buddhist Council in c. 543 BC was

situated on the Vebhāra hill. Ajātaśatru helped in the meeting of this Council (*Dhammasangĭti*) by building with expedition a large Hall at the entrance to the Cave, 2 platforms for the President and the speakers, and spreading costly mats on the floor for the seating of members [*Mahāvamsa*, Ch. III], Later, Bimbisara changed the capital to Rajagṛiha also known as Bimbisārapurĭ. The town-planning engineer and the palace architect is called Mahāgcvinda. The gate of the city was closed in the evening to all, including the king [*Vinaya*, IV. 116 f.]. The walls and fortifications of old Rājagṛiha are still visible, showing how they were built of rude and rough cyclopean masonry which made the structures so durable to this day.

The inscriptions of Chandragupta Maurya's grandson, Asoka, make mention of the following chief cities of the Maurya empire, viz., Pāṭaliputra, Bodh-Gayā, Kosāmbĭ, Ujjenĭ, Takkhasilā, Suvarṇagiri, Isila, Tosalĭ, and Samāpā. These cities were the capitals of the provinces, the headquarters of the local administrations, or centres of pilgrimage. Other towns which were populous and selected for that reason for the location of his inscriptions by Asoka were Shahbazgarhi and Mansehra, Kālsi, Sopārā, Girnar, Jaugaḍa, Dhauli, Chitaldroog, Rupnath, Sahasram, Bairat (Bhabru), Maski, Govimath and Pālkiguṇḍu in Kopbal District and Gooty in Kurnool district. The names of these places are not Maurya but modem names and most of these are now out of the way and deserted places, and not the centres of population and civilisation as they were in Maurya India. The course of civilisation changes through the ages.

The structures known as Stūpas formed an important part of the architectural inheritance and achievement of Mauryan India. The *stūpa* literally means 'something raised', a mound. It came to be used at a Buddhist architectural term for a mound containing relics of the Buddha, his ashes, bones, or tooth, or relics of famous Buddhist saints or teachers. The oldest *Stūpa* so tar discovered is that found in ruins at Piprahwa on the Nepal border. It was built in brick round an urn bearing the following inscription: "This shrine

for relics of the Buddha, the August One, is the pious foundation (*sukṛiti*) of the Śākyas, His brethren, in association with their sisters, their children, and their wives." The *Stūpa* was built as a solid cupola or domed mass of brickwork round and on a massive stone coffer. The bricks were huge slabs measuring up to 16 x 11 x 3 inches. Vincent Smith thus describes the *Stūpa*: "The masonry of the Stūpa is excellent of its kind, well and truly laid; the great sandstone coffer could not be better made; and the ornaments of gold, silver, coral, crystal, and precious stones which were deposited in honour of the holy relics display a high degree of skill in the arts of the lapidary and goldsmith" [*Imperial Gazetteer*, II. 102-3].

As the inscription on the *Stūpa* describes the Śākyas as its builders, it may be taken to be one of the original *Stūpas* in which, according to the *Mahāparinibbāna-suttanta*, were enshrined relics of the sacred body of the Buddha, after its cremation at Kusinārā, by eight contending claimants among whom figured the Śākyas of Kapilavastu. We have also the testimony of Asoka himself to the existence of *Stūpas* before his time. For in his inscription on the pillar at Nigāli Sāgar he himself states that he had enlarged to twice its original size the *Stūpa* consecrated to the sacred memory of a previous Buddha, the Buddha Koṇāgamana (Kanakamuni).

As to Art, it is seen at its best in the examples executed by Asoka. These are examples of different types of architectural activity for which Asoka is known to this day. He was the builder of cities, stūpas, vihāras or monasteries excavated in hard rocks, rock-cut caves, palaces and pillars of stone. The pillars are the master-pieces of Mauryan Art in the shining polish imparted to them which is supposed to be the despair of modem masons, and in the degree of perfection to which they were shaped, dressed, and decorated in accordance with the Emperor's design. They carried to perfection the art of the delineation of natural forms of animals and plants in stone. They are also notable as feats of engineering when it is considered that all these pillars weighing on an average 50 tons, and measuring a height of 50 feet, are all monolithic productions,

showing how large masses of rocks were shaped into pillars, and also how these great weights were shaped into for the purposes of their transport over distances of several hundreds of miles to their appointed sites at which they were to be located in accordance with the imperial scheme of public welfare which they were intended to serve. For instance, a chain of pillars was called for to indicate the Pilgrims' Progress towards the holy lands of Buddhism from Pāṭaliputra to the place of the Buddha's nativity. Just as the *Stūpa* was pre-Asokan, so also was the Pillar. Asoka himself refers to the existence of pillars before his time, and his utilising them for purposes of his Inscriptions [*Asoka*, p. 87].

But if Mauryan Art is admitted to have achieved so much progress in the days of Asoka, such progress could not have been achieved in a day. It must have been preceded by a long course of evolution from its origins and crude beginnings in earlier times. Fortunately, these beginnings of Indian Art are traceable in certain examples still extant. There is a class of colossal statues of stone which are admittedly pre-Asokan, and perhaps pre-Mauryan. These statues represent the folk-art of the times inspired by the popular worship of certain minor deities. The religion of the masses centred round the worship of the minor gods and goddesses known as Yakshas and Yakshīs, Nāgas or Nāgīs, Gandharvas, Apsaras and even tree-and water-spirits. Up to now eleven examples of these oversized figures of deities have been discovered, namely, (1) Parkham (Muttra) Yaksha; (2) Baroda (Muttra) Yaksha; (3) Yakshī in another village at Muttra, worshipped as Mansā Devī; (4) another Muttra Yaksha newly discovered (*U.P.H.S.J.*, May 1933: 95); (5) Patna Yaksha, now in the Indian Museum; (6) another Patna Yaksha statue in the Indian Museum; (7) female chauri-bearer from Didarganj, Patna; (8) inscribed Maṇibhadra Yaksha from Pawaya (Gwalior); (9) Besnagar female statue; (10) a second Besnagar female statue; (11) fragments of a Yaksha statue found at Kosam. Some of these statues bear inscriptions naming the deities they represent. Thus Nos. (1) and (8) represent Maṇibhadra, the Yaksha

general of Kubera; No. (3) represents Yakshī Lāyāvā. One of the Patna statues is that of *Bhagavān Akshata-nīvika* (Kubera), while the other is Yaksha *Sarvatra Nandi*. Nos. (1) and (3) are also stated to be works of a School of Sculptors represented by Kunika, his pupil, Naka, and his grand-pupil Gomitaka.

That this Art of statuary or portraiture in stone is very old is also demonstrated by the fact that it continued up to later times and also in imitations. While these statues stand by themselves as independent objects of worship, they figure as parts of a whole in the scheme of Bharhut sculptures of second century BC. The Bharhut sculptures are full of images of these secondary deities figuring in the religion and worship the masses. The later examples of this type of Folk-Art are seen in the Bodhisattva images which are supposed to be the works of the Mathurā School of Art. The colossal Bodhisattva image found at Sarnath bears an inscription which assigns it to the year 3 of Kanishka and describes it as a gift of Bhikshu Bala of Mathurā. Thus the Bodhisattva images were the continuations of the Yaksha images in a different religious reference.

According to Dr. A.K. Coomaraswamy, even this supposed primitive or folk-art is not without its own artistic merits. It is no doubt primitive and crude as compared with the finished art of the time of Asoka, the art of the cultured classes, the official or Court-Art, as it may be called, which was meant to cater for the religious requirements of Hīnayāna Buddhism of those days. Coomaraswamy considers these colossal statues to be "informed by an astounding physical energy not obscured by their archaic stiffness, and expressive of an immense material force in terms of sheer volume;" representing "an art of mortal essence almost brutal in its affirmation, not yet spiritualised, and without any suggestion of introspection, subjectivity, or spiritual aspiration." "Stylistically, the type is massive and voluminous and altogether plastically conceived, not bounded by outlines."

As regards the distinction between the primitive, rural, and the refined urban, art, we have some evidence in the grammar of

Pāṇini (*c.* 500 BC). Pāṇini [V. 4, 95] makes a distinction between the *Grāmaśilpī* and the *Rājaśilpī*. The former represented the artists in the employ of the village community, while the latter refers to the court-artists catering for the cultured classes and the aristocracy. It may also be noted that all these statues are marked in common by an ornament like the necklace or the torque for which Pāṇini has the significant formation *Graiveyaka* [IV, 2, 96]. It may, therefore, be assumed that Asokan art had its earlier beginnings in the time of his predecessors in these statues representative of rural worship and folk-art of the times.

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9

Economic Regulations and Industrial Development under the Gupta Rule

The Golden Age of the Guptas is equally characterised by a remarkable economic development of the country. This was the period of the expansion of India and of much coloinising activity towards the Farther East from Bengal, Kalinga and the Coromondol Coast. Parts of Burma and Malacca were colonised, chiefly from Kalinga and Bengal as shown in Sir A.P. Phayre's History of Burma and testified to by Burmese sacred literature and coins. The main evidences for the Economic History of this period are supplied by the accounts of Fa Hien, the Christian Topography of Cosmos, the Śukranĭtisāra, the Yājñabalkya Smriti, the Vishnu Smriti, the Narada Smrti and the Puranas. Yule's Cathay and the Way Thither and the Chinese annals like the Kwai Yuen Cataloque of the Chinese *Tripitaka* have recorded many facts relating to early commerce between India and China.

The economy of India must have been based as in the previous periods on a system of Village Communities only with this difference that the degree of control from the central government was less

than what existed under the Mauryas. The immense development of trade no doubt led to a vigorous growth of city-life in important centres of trade. Fa Hien says the towns of Magadha were large. But the majority of the people lived in the villages and agriculture was their principal industry. In Chapter IV, Sec. 4, lines 91-122 of Śukranitisara we get some of the Agri-flori-horti-cultural ideas prevalent in those times. Ordures and dungs were recognised as good manure (*l.* 94). There were also arrangements for irrigation; Wells, canals, tanks and ponds should be made accessible (by staircases etc.) There should be many of these so that there may be plenty of water in the Kingdom (*ll.* 124-127). Water-reservoirs are also maintained (Chap. IV. Sec. 5, line 141). It is further laid down that "if people undertake new industries or cultivate new lands and dig canals, tanks, wells, etc., for their good, the King should not demand anything of them until they realise profit twice the expenditure (*ll.* 242-44). Sukra is thus definitely an advocate of the Young Industry Argument. The King shall take his due from the peasant in such a way that he be not destroyed. It is to be realised in the fashion of the weaver of the garland and not of the coal-merchant (*ll.* 222-23) the King should realise l/3rd, 1/4th or 1/2 from places which are irrigated by tanks, canals and wells; by rains and by rivers respectively (ll. 227-29). He should have l/6th from barren and rocky soils (*l.* 230).

Coming to Forest Produce we find meniton of Udambara, Asvatha, tamaried, Chandana, Bata, Kadamba, Asoka, Bakula, Maego, Punnag, Chamapaka, Pine Pomegranate, Walnut, Neem, Date, Tamala, Likucha, Cocoanut, Plantain (*ll.* 95-102) which bear good fruits. Khadira, Teak, Sāl, Arjuna, Sami and many other large trees are mentioned (*ll.* 115-122). There were also Superintendents of parks and forests who had to know the causes of the growth and development of flowers and, fruits, who knew how to plant and cure the trees by administering proper soil and water at the suitable time and who knew of their medicinal properties (Chap. II. Lines 320-24).

Development of Art and Crafts

In the arts and crafts there was a unique development. After going through the enumeration of 64 Kalas given by Sukracharyr, Chop.VI See. III. one can hardly believe that the Hindus were a race of abstract metahpbysicians who were negligent of the actual needs of society and cultivated the art of preparing for the next life only. He would rather think that they knew how to enjoy life and supply its necessories, comforts and decencies. The more important of the Kalas or mentioned below:—dancing (*l.* 133) playing on musical instruments (*l.* 134) decorations (*l.* 35). anties (*l.* 36) jugglery, magic, etc. (*ll.* 135-39) distillation of wines and spiritual liquors from flowers etc., (*ll.* 141) cooking (*l.* 143) confectionery (*l.* 146) pharmoceutical preparations (*l.* 147) analysis and synthesis of metals (*l.*148) alloys (*l.* 149) salt industry (*l.* 150) polishing stone, wood and metal vesseles (*ll.* 167-68) watch and clock industry (*l.* 170) dying (*l.* 171) rope industry (*l.* 174) weaving (*l.* 175 preparation of artificial gold and gems (*l.* 178) enamelling of metals (*l.*179) tailoring (*l.* 183) oil industry, *i.e.*, extracting oil from seeds and fats (*l.* 187) [Fa Hien also speaks of oil of cinnamon used in a funeral ceremony] cane industry (*l.* 90) glass industry (*l.* 191) iron implements and tools (*l.* 193) nursing (*l.* 195) pumping and withdrawing of water (*l.* 129). Leatner industry was known in its two processes —the flaying of the skin (*l.* 181) and the sofetening of the hide or tanning (*l.* 180).

In another passage Sukra enumerates a large number of arts and crafts. Says he —"Among the King's servants and attendants there should be musicians, poets, guards of honour, artisan artists, fools, ventriloquists, dancers and harlequins, (*ll.* 390s,-92) those who construct parks, arificial forests and pleasuse-garderns, builders of forts, gunners (*ll.* 393-94) those who make lighte machines, gun-powder, arrows cannon balls and swords and construct vrious tools and implements, arms, weapons, bows, quivers etc. (*ll.* 395-96); those who prepare ornaments of golds, jewels etc., builders of chariots, stone-cutters, block-smiths and those whoenkmel metals,

(*ll.* 297-98) potters, copper smiths, carpenters, road-maers barbers, washers, and those who carry nightsoil (*ll.* 399-400) messengers, tailors, add bearers of royal emblems and ensigns (*l.* 401), weavsrs, (*l.* 407) those who prepare fragrant resins (*l.* 410), sailors, miners, fowlers and repairers of implements, (*ll.* 404-405.)

Sukra also refers to horse-brush which is an instrument with seven sharp teeth to be used in cleansing (or rubbing) these animals (horses, bulls, camels Sec.) [Ch. IV. Sec. 7. l. 346]. As regards the liquor industry which was a Government monopoly it was laid down that "The King should build the Ganja house outside the village and there keep the drunkards and should never allow drinking of liquor in his kingdom in day time (Ch. IV. Sec. *ll.* 4.89–90.) All the mines belonged to the King. As regards the royalty on mines it was laid down that the King should daily receive (as duty) from the sales of silver 1/5 th, 1/4th, 1/3 rd or 1/2 and not more (*ll.* 643.44). According to Sukra royalties on mines constitute non-temitorial income (*ll.* 671-72). The weaving of cotton, silk and wool was also carried on in this period. Fa Hien speaks of "fine white linen painted with gaudy colours." Sukrāchārya (Ch. I. Sl. 180) not only refers to silk and woolen goods but also gives the method of cleansing them.

Yājnabalkya speaks of paper made of cotton etc. pearl fishery was undoubtedly a very flourishing industry in this period. According to Garuda Purāna it was carried on throughout the Indian Ocean as far as the Persian Gulf, Garuda Purāna. Part 1. Chapter 68 discusses corals and pearls while Chapter 69 discusses the pearls born of oysters and describes the pearls of the Palk Strait and of the Persian Gulf. The Barāha Purāna also relates how a merchant embarked on a voyage in quest of pearls. According to Sukracharya pearls grow in fishes, suakes, conches, hogs bawboos, duds and shells. Of these the greatest amount is said to come from shells (Sukranitisara Ch. (V. Sec. 2, lines 117-18). The people of Ceylon could make artificial pearls like these (*Ibid*. d. Ch. IV. Sec. 2. *l.* 124.). Fa Hien says "Ceylon and the adjoining islands produce pearls and precious stones

and the Mani-gem is also found in a district where the King placed a guard and claimed as royal share three out of every ten" (Beal. LXXII). Jewellery was also in a highly developed condition. The classic drama of the Little Clay Cart speaks of "golden stairways inlaid with all sorts of gems" and of "crystal windows from which are hanging strings of pearls." Again "the arches set with sapphires look as though they were the home of the rain-bow." The Garuda Purāna (Part I. Ch. 72) mentions the blue stones found on the sea-coast of Ceylon while Chapters 77 and 79 describe various precious stones of Yavaua, China and other lands. Chapter 80 mentions the Bidrume (a stone) of Remaka (Rome). In the Eittle Clay Card there is also mention of "the high ivory portals of a couresan's house.

The Gupta artists and craftsmen were no less capable in the working of metals. Sutra enumerates the metals in order of their value, thus—gold, silver, copper, zine, tin and iron. Bronze is the alloy of zinc and copper, brass of copper and tin (Ch. IV Sea. 2. *ll.* 173-176)' of these the iron industry reached the high point of development. The Iron pillar of Chandragnpta II (415 AD) at Delhi situated near the Kutb-Minār is 22 feet high with a diameter of 16'4 inches. According to the analysis of Sir Robert Hadfield the pillar contains the following;

Iron	...	...	...	99.120
Angār	...	...	...	.080
Sulphur	...	...	...	.006
Sylicon	...	...	...	.46
Phosphorus	...	...	...	.113
Manganese	...	...	...	.000
				99.965

From this it is apparent that the pillar is made of pure wrought iron with no mixture of manganese. Roscoe and Schorlemmer have rightly observed "It is not an easy operation at the present day to forge such a mass with our largest rolls and steam-hammers; how

this could be effected by the rude hand-labour of the Hindus, we are at a loss to understand." Ferguesson has remarked "Taking 400 as a mean date and it certainly is not far from the truth—it opens our eyes to an unsuspected state of affairs to find the Hindus at that age capable of forging a bar of iron longer than any that have been forged in Europe upto a very late date and not frequently even now." There is a still larger iron coloumn at Dhar (about 321 AD) over 43 feet 8 inches in length with a diamenter of 10 1/4, inches. Jāhāngir has written in his Memoirs "Outside the fort of Dhar there is a Jama Masjid and a square pillar lies in front of the Masjid with some portion imbedded in the ground. When Bāhādur Saha conquered Malava he was anxious to take the pillar with him to Gujrat. In the act of digging out, it fell down and was broken into two pieces (one piece 22 feet long and the other 13 feet)." If joined the Dhar pillar would the highest iron pillar in the world.

It is remarkable that the Delhi pillar though fully exposed to the weather has never rusted but retains its inscriptions as clear as when it was engraved. Dr. Panchānon Niyogi remarks in his memorable work entitled "Iron in Ancient India" "two explanations are possible of this remarkable power of ancient specimens of iron resisting corrosion—either there was something in the composition of the iron or that the beams were painted or both. To the author it appears that both the facts have operated in enabling the Indian iron pillars and beams to withstand thy corroding influence of wind and rain..... the one point remarkable regarding the composition of the Deihi iron, Sinhalese iron and other specimens of Indian iron is that all these specimens of iron are free from manganese and sulphur and contain a tolerably high percentage of phosphorus."

That much specialisation took place in this industry will be evident the from the fact that in ancient India iron was divided into three classes—Munda, Tikshna, and Kānta. Munda in its turn was divided in to three classes—Mridu, Kunta and Karar. Tikshna was subdivided into six classes—Khara, Sāra, Hrinnāt, Tārābarcha Bājir and Kālalouha. Kānta was divided into five classes—Bhrāmak

Chumbak, Karṣhak, Drabak and Romakānta. From old Sanskrit texts like *Rasharatna Samuchaya and Rashendrasar Sangrah* we learn that Munda, Tikshna and Kanta iron are the modern cast iron, steel and wrought iron. The Hindu Ayurveda Śastras make mention of hamatide andiron pyrite. The Hindu Medical men knew the preparation of Chloride of iron. Oxide of iron and Sulphide of iron (History of Hindu Chemistry by Dr. P.C. Roy). From the Yuktikalpataru we learn that swords were manufactured in Benares, Magadha, Ceylon, Nepal, Agra, Mysore, Surat and in Kalinga. The Sukranītisara also mentions the manufacture of small and large nalikas besides guns and cannon-balls already mentioned. Sivendasa in his commentary of Chakrapana quotes Patanjali as an authority on Lohaśastra or the Science of Iron (History of Hindu Chemistry, Vol. I. p. 55).

The art of casting copper statutes on a large scale by the *cire perdue* process was practised with conspicuous success. A copper image of Buddha about 80 feet high was erected at Nalanda at the close of the 6th century. The fine Sultanganj Buddha 7 1/2 feet high (now in the Museum at Bermingham) dates from the reign of Chandgupta II. From the Yuktikalpatarn [which was probably compliled by Bhoja Narapati (Dr. Rājendralāl Mitra's Notices of Sanskrit Mss., Vol. I. No. CCLXXI) from works at least as old as the 4th or the 5th Century AD] we learn that the art of ship-building was carried by the ancient Hindus to a very high stage of development. After pointing out that the Kshatriya kind of wood (which is light and hard cannot he joined on to other classes) as the best for ships, Bhoja an earlier authority on ship-building, points out that care should be taken that no iron is used in joining together the planks of the bottom of sea-going vessels for the iron would inevitably expose them to the influence of magnetic rocks in the sea. The author of Yuktikalpataru divides ships into two classes—special and ordinary. The special is further sub-divided into two—Dirgha and Unnata. There are ten kinds of Dirgha ships:

Names of ships		*Length in cubits*	*Breadth in cubits*	*Height in cubits*
1. Dirghikā	...	32	4	3 1/5
2. Taraṇi	...	48	6	6 5/5
3. Lola	...	64	8	6 2/5
4. Gatvarā	...	80	10	8
5. Tari	...	112	14	11 1/5
6. Gāminī	...	96	12	9 2/5
7. Jangāla	...	128	16	12 4/5
8. Plābinī	...	144	18	14 2/5
9. Dhāriṇi	...	160	20	16
10. Beginī	...	176	22	17 3/5
Unnata ships are subdivided into five classes:				
Urdhavā	...	32	16	16
Anūrdhavā	...	48	24	24
Swarnamukhī	...	64	32	32
Garbhinī	...	80	40	40
Manatharā	...	96	48	48
Ordinary ships are divided into ten classes:				
(1) Kshudrā	...	16	4	4
Madhyama	...	24	12	8
Bhīmā	...	40	20	20
Chapalā	...	48	24	23
Patalā	...	64	32	32
Bhaya	...	72	36	36
Dirghā	...	88	44	44
Patraputā	...	96	48	48
Garbharā	...	112	56	56
Mantharā	...	120	60	60

Of these ships Lola, Gāmini, Plābinī, Gatvarā, Tarī, Jangālā and Dhariṇī, Anurdhava, Garvinī, and Manthara, Bhīma, Bhaya

and Garbhara bring ill luck. The prow of ships may admit of the shape of the heads of lion, tiger, elephant, buffalo, serpent, duck, peahen, parrot, frog, man etc. Ships may be decorated with gold, silver, copper, the compound of these three, pearls and garland of gold. Again a vessel with four masts is to be painted white, that with three masts to be pointed red, that with two yellow and that with one blue. According to the position of their cabins ships are Sarbamandirā Madhymandirā, and Agrmnandirā. Agra mandirā ships are eminently fitted for long voyages and for naval warfare (History of Indian Shipping, pp. 20-26).

Fa Hien thus speaks of a fine piece of bambocwork carried in procession in Magadha "On this occasion they construct a four-wheeled car and erect on it a tower of five stages composed of bamboos lashed together, the whole being supported by a centre-post resembling a large spear with three Points, in height 22 feet and more. So it looks like a pagoda. They then cover it with fine white linen which they afterwards paint with gaudy colours. Having made figures of the Devas decorated with gold, silver and glass, they place them under conopies of embroidered silk. Then at the four corners of the car they construct niches (shrines) in which they place figures of Buddha in a sitting posture with a Bodhisattva standing in attendance. There are thus 20 cars prepared and differently decorated" (Beal, LVI—LVII). Similar processions of lifelike figures painted in diverse colours took place in Ceylon. At Toli says Fa Hien a skilful carver of wood carved a wooden image of Maitreys Bodhisattva. 80 feet in lengthy.

Urbanisation Guild Society

Townplanning was also known. In the Silpasastras the proper place for each kind of building was strictly prescribed as well as the measurements of actual buildings down to the smallest ones. The whole was planned in the model of a city in Heaven. Thus all building is traced back to the work of the divine architect Viswakārma. Thus architecture becomes a sacred calling with the master craftsman as priest. Hence Bana of the next epoch comparies

Ujjain to Kailash with its many peaks clear cut against the sky. "The three closely allied arts of architecture, sculpture and painting" says Mr. V.A. Smith "attained an extraordinarily high point of development. The accident that the Gupta Empire consisted for the most part of the erovinces permanently occupied at an early date by the Muhammadans who systematically destroyed Hindu building, for several centuries obicures the history of Gupta Architecture. No large building of the period has survived and the smaller edifices which escaped destruction are hidden in remote localities away from the track of the Muslim armies chiefly in Central India and the Central Provinces chiefly in Central Provinces. They closely resemble rock-cut temples (Oxford History of India, p. 160). Fa Hien noticed a huge stone samgha-rama in the Deecan (in the modern Chanda District). It is constructed out of a great mountain of rock hollowed to the proper shape. The building has altogether five stages. The lowest is made with elephant figures and has five hundred cells in it. The second is made with lion shapes and has four hundred chambers. The third is made with horse shapes and has three hundred chambers. The fourth is made with ox shapes and has two hundred chambers. The fifth has dove shapes and has 100 chambers in it. At the very top of all is a spring of water watch flowing in a stream before the rooms encircles each tier and so running in a circuitous course, at last arrives at the very lowest stage of all, where flowing past the chambers it finally issues through the door. Throughout the consecutive tiers in various parts of the building windows been pierced through the solid rock for the admission of light, so that every chamber is illuminated and there as no darkness. At the four corners of the edifice they have hewn out the rocks into steps as means for ascending". (Beal, LXVIII-LXIX).

In Samkasya "there ere 100 small towers. A man might pass the day in trying to count them without succeeding. If any one is very anxious to find out the right number then he places a man by the side of each tower and afterwards numbers the men; but even in this case, it can never be known how many or how few men will be

required" (Beal, XLIIXLIII.) "In old days" says fa Hien "men bored through the rocks (10,000 feet high) to make a way and spread out side-ladders of which there are 700 steps in all to pass. Having passed the ladder we Proceeded by a hanging rope bridge and crossed the river". The Viswakarma cave of Ellora has a hall which is 85 feet by 43 feet. The facade looks like an ordinary twostoried house with verandahs richly sculptured. At Ellora thare are many monasteries attached to the Viswakarma cave. Three temples here *viz*., the Do-tal, the Teen-tal and Das-Avatar show the gradual merging of Buddhist excavations into Hindu. The temples of Ellora constructed in a later period (8th or 9th century AD) make Ellora one of the wonders of the world. The Kanheri cave on the island of Salsettee in the Bombay harbonr was excavated early in the fifth century AD, It copies the Karli cave (1st century BC) but the style is inferior.

The most important stone temple of this age is that of Deogarh in the Lalitpur subdivision of the Jhansi Destruct, U.P. the panels of whose walls contain some of the finest specimens of Indian sculpture. The larger brick temple at Bhitaagaon in Cawnpur district which has been ascribed to the reign of Chandragupta II, is remarkable for vigour and well-designed sculpture in terra-cotta. Fragments including some beautiful sculptures indicate that beautiful stone temples of the Gupta age stood at sarnath near Benares. "The Gupta sculpture exhibits pleasing characteristics which usually enable a student familiar with standard examples to decide with confidence whether or not a given work is of Gupta age. The physical beauty of the figures, the gracious dignity of their attitude and the refined restraint of the treatment are qualities which are not to be found elsewhere in Indian sbulptures in the same degree. Other obvious technical marks are the plain robes showing the body as if they were transparent, the elaborate holoes and the corious wigs" (Oxford History of India, p. 162).

Two of the finest caves at Ajantā Nos. XVI. and XVII. were excavated in this period (J. R.A.S. 1914, p. 335). A Danish artist thus speaks of the paintings in Ajanta caves "they represent the

climax to which genuine Indian art has attained" and that "everything in these pictures from the composition as a whole to the smallest pearl of flower testifies to depth of insight coupled with the greatest technical skill" (Ann. Rep. Arch. Dept. Nizam's Dom. for 1914-15. App. H. by Axel Jarl). The worth of the achivement will be further evident from the fact that "much of the work has been carried en with the help of artificial light, and no great stretch of imagination is necessary to picture all that this involves in the Indian climate and in situations where thorough ventilation is impossible" (Griffith, The paintings in the Buddhist Cave-temples of Ajantā). About the truth and precision of the work which are no less admirable than its boldness and extent, Mr. Griffith has the following glowing testimony "During my long and careful study of the coves I have not been able to detect a single instance where o mistake has been made by cutting away too much stone, for, if once a slip of this kind occurred, it could only have been repaired by the insertion of a piece which would have been a blemish" (Ibid.). The closely related, frescoes at Sirgiriya in Ceylon were executed in this period (between 479-497 A.D).

Some of these crafts were organised into guilds. Sukra mentions the guilds of cultivators, artisans, artists, usurers, the dancers and the ascetics (Ch. IV. Sec. 5. *ll.* 35-36). It is further laid down that "that the leader or captain of those who combine to build a palace or a temple and construct canal or furniture is to get twice the share got by each" (606-07). The goldsmiths should get remuneration according to the labour undergone by each in cases where they combine to perform a work of art. Evidence of Yājnabalkya, Nārada and Vishnu tend to prove conclusively that the guilds were not only recognised as a part of the state fabric but also their authority was upheld by that of the state. Thus Nārada says "The King must maintain the usages of the guilds and other corporations. Whatever be their (religious duties), (the rules regarding) their attendance and (the particular mode of) livelehood prescribed for them, these the King shall approve of" (X. 2, 3). We are further told that "those who cause dessension among the members of an association shall undergo punishment of a specially severe kind because they would

prove extremely dangerous, like an (epidemic) desease if they were allowed to go free" (X. 6.). The Yajnabalkya Samhitā also prescribes that if a man steals the property of a guild or any other corporation or breaks any agreement with it he shall be banished from the realm and all his property confiscated (II. 187-192). Similar injunctions also occur in the Institutes of *Vishnu Ganadrauyapohorta libarya*. Besides these, Yājnabalkya (chap. II. slokas 186-192) lays down that (1) the guilds could possess corporate Property (2) that they could lay down rules and regulations corresponding to the Articles of the Association of the present day. Nārada (X. 1) referee to the Samaya which he detunes as the aggregate of rules settled by the corporations; (3) that the duties arising; from the rules and regulations (Sāmayika) not inconsistent with the injunctions of the sacred texts as well as the regulations laid down by the King must be observed with care, thus placing duty towards the guild on an equal footing with that towards the; (4) some pure and virtuous men were appointed as the Executive officers (5) they often transacted business with the Court in their name and were held in high respect there. (6) They possessed executive authority over the members of the guild and could punish any one who disobeyed their decision.

Yājnabalkya here makes no mention Of the President of the guild but there must have been one as the frequent reference to Streshthin in contemporary inscriptions show and as Sukra mentions the leader or captain of corporation in 606-07 quoted above; (7) they were, however, bound by the laws and usages of the corporation and if they violated them in the exercise of their authority and there was dissension between them and the general members, the King had to step in and make both parties conform to the established usuage. Mitrāmiśra [Virāmitrodaya (edited by Jivaānnda Vidyasāgar) p. 428] goes further. He takes verse 187 of the second chapter of Yājnabalkya to refer to the Makhayas and cites the following text from Kātyāyana as an illustration of the doctrine (the right of the assembly to punish its chiefs):

> Shahashi bhedkai cha gauadrabyavinashakah:
> *Uchachedyah Sara abaiti vishapyer wripe bhrigah.*

Thus any of the Executive Officers who was guilty of any heinous criminal act, who created dissension or who destroyed the property of the association could be removed and the removal was only to be notified to but not necessarily to be sanctioned by the King. When the removal could not be effected on account of the enormous power of the Executive officers, the matter was to be brought to the notice of the King who would bear both sides of the case and decide (Nārada X. 3 and Jagannatha's comment on it). Miramisra observes in be same strain '*Sawahashakle tosyo daudo ragyau vidheya*)' "the King should step in only when the assembly found itself unable to punish the officers". He quotes as an illustration of this Manu (VIII. 219-21) "If a man belonging to a corporation inhabiting a village or a district after swearing to an agreement, breaks it through avarice (the King shall banish him from his realm". He takes the whole passage as referring to the Mukbyas or Executive officers alone.

Some other cases of royal interference may be gathered from Nārada (X. 4, 5. 6.) where it is laid down that the King could forbid combinations of different associations (possibly of a hostile nature), arming of those bodies without due causes and the conflict between them. He could also prevent them from undertaking such acts as were either opposed to his wish or interests or of contemptible and immoral nature. Thus a King could interfere with them only in some specified cases but otherwise they were to act in whatever way they liked and the King was bound to accept their decision. According to Nārada regular rules were laid down for the attendance of members in the assembly and the King had to approve of them whatever they might be (X. 3.). It appears from Mitramisra's comment on the passage that the sound of a drum or other instruments was a signal for the attendance of members in the guild hall for the transaction of affairs (Viram. p. 430).

These guilds also passessed judicial authority over its members. Thus Sukra laws down "The cultivators, the artisans, the artists, the usurer, the corporations, the dancers, the ascetics' and thieves should decide their disputes according to the usages of their guilds (ch. IV.

Sec. 5. *ll.* 35-36). Thus the guilds could only interfere in cases which affected or had a tendency to affect the transaction of their business. The following passage from Sukra seems, however, to show that the guild also formed port of the ordinary tribunals of the country "The Kula (family) Sreni '(guilds) and Ganas (republican communities) are the three successively higher organisations of self-adjudication. When and where these fail, the King with his officers is to interfere" (ch. IV. Sec. 5. *ll.* 59-60). According to Nārada also (107, p. 6) the guild formed the second of the four ordinary courts of justice from each of which an appeal lay successively to the next higher ones. This is supported by the recently published Damodarpur Copper Plates dated in the year 433 and 438 AD in the reign of the Gupta Emperorr Kumārgupta I, where we find a clear reference to courts presided over by the chiefs of different guilds of merchants and artisans (Ep. Ind. Vol. XV. p. 130).

The existence and organisation of the guilds is further corroborated by the inscriptions of this period. Thus the Indor Copper Plate Inscription of Skandagupta (Fleet, Gupta Ins. No. 16) dated 465 AD records the gift of an endowment, the interest of which is to be applied to the maintenance of a lamp which has been established in a temple for the service of the Sun-god. We are further told that "this gift of a Brahmin's endowment of (the temple of) the Sun (is) the perpetual property of the guild of oilmen of which Jivanta is the head, residing in the town of Indrapur so long at is continues in complete unity (even) in moving away from this settlement" (Ibid p. 71). Here we find "the custom of designating a guild by the name of its headman, the mobility of the body, greater importance being attached to the unity of the guild than the place where it settles". It should be noted that "none but a fully organised body could thus shift from place to place and yet retain its unity and public confidence". No less interesting is the Mandasor stone inscription of Kumārgupta and Bandhubarman (Fleet, Gupta Inscriptions, No. 18) which relates how a guild of silk-weavers, originally settled at Lāta immigrated into the city of Dasapur

attracted by the virtues of the King of that place. Here some of them learnt archery, some adopted the religious life, some learnt astrology and astronomy, some poetry, some became ascetics, while others adhered to their hereditary profession of silk weaving. In built in 436 AD a magnificent temple of the Sun at Dasapur and while it fell into disrepair the same guild repaired it in 472 AD. This inscription shows that the guilds were not stereotyped close corporations of crafts busy alone with their own profession but that "through the autonomy and freedom accorded to them by the law of the land they be came a centre of strength and an abode of liberal culture and progress which truly made them a power and ornament of the society." (Corporate Life in Ancient India, p. 68).

Corporate Regulation and Industrial Life

Combined with this widespread corporate regulation of industrial life there was a very general but by no means cast iron custom for the son to follow the calling of the father. Thus it is laid down by Vishnu (III. 2) and Yāynabalkya (I. 360) that the King should enforce the observance of the respective duties of the castes, Sukra says "every caste should practise the duties that have been mentioned as belonging to it and that have, been' practised by ancestors and should otherwise be punished by Kings (ch. IV, Sec. 4, *ll.* 82-83). But he also says "For Brahmins agriculture has been prescribed by Manu and others" (ch. IVI Sec 3,1. 37) Another instance of mobility of labour we find in the Mandasor Stone Inscription of Kumāragupta and Bandhubarman (mentioned above) where the silk weavers took to different pursuits with impunity.

In this connection it may be noted that according to Fa Hien the Chandālas who did not observe the rules of purity were obliged to live apart and were required when entering a town or bazaar to strike a piece of wood as a warning or their approach in order that other people might not be polluted by contact with them. A very new and interesting feature of the rules ragarding the labourers of this period is the existence of rules regarding *Bonus Leave and pension* and something approximating to the *Provident Fund*. Thus

it was laid down by Sukrāchārya that even a slight portion should not be deducted from the full remuneration of a servant has been ill for half a fortnight. And if the diseased be highly qualified he should have half the wages. The King should give the servant 15 days a year respite from work (*Ibid.*, 825). The King should grant half the wages without work to the man who has passed 40 years in his service (*Ibid.*, 826-27) for life and to the son if minor and incapable half the wages or to the wife and well behaved daughters (*Ibid.*, 828-29). He should give the servant l/8th of the salary by way of reward every year and if the work has been done with exceptional ability l/8th of the services rendered. He should keep with him as deposit l/6th or l/4th of the servant's wages, should pay half of that amount or whole in two or three years.

A large number or rules regarding labourers and their wages has been lain down by Sukrāchārya. According to him remuneration can be paid according to time, work or according to both. It is to be paid therefore as arranged *i.e.*, according to contract. According to the qualifications of the workers there should be the rates of wafies fixed by the King for his own welfare (*Ibid.*, 803-804). Wages are to be so fixed that the worker may maintain those who are his compulsorp charges (*Ibid.*, 805-806). Thus the equitable rate of wages is that which considers not simply the absolute necessaries of life but also recognises the standard of life and comfort as implied in the care for family and dependant. Those servants who get law wages are enemies by nature (*Ibid.*, 807-808). Hern Sukra is aware of political and social effects of low wages and thus this equitable standard anticipates by centuries the socialistic cries for "higher life" to be lived by the working classes. The wages of the Sudras are to be just enough for food and raiment (Ibid. *l.* 809). At the same time Sukra lays down that "you should not commit violence on any body in the matter of remuneration, duties or revenues by increasing them through sight or strength (Chap. I lines 617-18). This law prohibits exaction and undue enhancements of payment from the master in the shape of increased wagesor salary, from merchants in the shape of augmented excise

and customs and from the subjects in the shade of exorbitant raucous. Rates in all these cases should not be increased by threat of physical violence or by crafts of diplomacy. According to Sukra the goldsmith's wages is to be l/30th (of the value worked upon) if the workmanship is excellent, 1/60th if mediocre, half of that if of inferior order (*ll.* 653-54). The wages of the goldsmith is to be half of that in the ease of Kataka (beacelet), hals of that in the case of mere melting (*l.* 655). The silversmith's wages Is to half if workmanship be of the highest order, half of that if mediocre, halg of that if inferior and half of that in the case of Kataka (*ll.* 656-57). The wages is to be 1/4 in the case of copper, zinc and jasada metal, half or equal or twice or 8 times in the case of iron (*ll.* 658-59).

It is evident from the various kinds of ships mentioned above that maritime intercourse was fully mentioned in this period between India and the outside world. In fact in the 'spacious times' of Gupta Imperialism Indian traders carried the torch of civilization into the hearths of 'the people of Java, Pegu, Cambodia, Siam, China and even Japan. The conquest of W. India by Chandagupta II. brought the Gangetic provinces into direct communication with the western ports especially those of Gujrat and so with Alexandria and Europe. Trade also followed the landroute through Persia. The Raghubamsha of Kālidās mentions the carrying into Persia of the victorious arms of Reghu by the landroute *Pasikau iato jiluh pratasihe sthalvartana*. This express reference to landroute implies that the water route was well known. The Sakuntalā also relates the story of a merchants named Dhanavridhi whose immense wealth devolved on the King on the former's perishing at sea and leaving no heir behind. In the Yājnavalkya Samhitā there is a passage which indicates that the Hindus used to make sea voyages in pursuit of gain (II. 3). The Varāha Purāna (Ch. 171) mentions a childless merchant named Gokarna who embarked on a voyage for trading purposes. In the same Purāna we are told of a merchant who went on a ship quest of pearls with people who knew all about them. In a passage of the Mārkandeya Purāna we find a reference to the dangerous plight of the man sailing on the great ocean in a ship

overtaken by a whirlwind. The Vishnu Purāna Book II. discusses the earth surrounded by the seas and the ocean trides. The Vāyu Purāna mentions King Bharat of the Vāiraja dynasty as having conqured 8 islands of the Indian Ocean (c. f. also Bhāgabat Bk. V. Ch. 19).

From this time forward trade with Rome gradually decilined. Already the trade with Alexandria had suffered much at the hands of Caracalla. The Palmyrine trade was ruined by the destruction of Palmyra itself in 273 AD. Constantine weakened the Roman Empire by changing the seat of government in 330 AD. Alaric sacked Rome in 410 and Attila ravaged her lands in 451. In 454 the huge wave of a Vandal invasion swept off her arts and crafts. She was again pillaged in 472 and 476. Thus Rome that eternal city—the mother of arts. civilization and heroes—"stood childless and crownless in her voiceless woe like another Niobe all tears !!!"

The powerful Sassanids of Persia now monopolised the Indian trade. According to Hamza of Inpahan the ships of India and China could be seen constantly moored at Hira near Kufa on the Euphrates (Yule's Cathay and the Way Thither I. LXXVIII). The ports of Sindh and Gujrat appear among the chief centres of this naval trade. The Tamils in this period carried on their commercial relations with the people of Lower Burma or Pegu. According to Sir A.P. Phayre (History of Burma pp. 28 and 31) Pegu was conquered by emigrants from the Telegu Kingdom bordering on the Bay of Bengal and consequently the people of Pegu have long known to the Burmese and to all foreigners by the name of Talaing. According to the same authority the people of Kalinga had commercial intercourse with Burma as the existence of some coins and medals in Pegu with Hindu symbols shows (History of Burma, p. 31). Nor is this all According to R.F. St. Andrew St. John (J.R.A.S. 1898) "somewhere about 300 AD people from the west coast of Bengal founded colonies on the coast of Gulf of Martaban, of which the principal appear to have been Thaton or Saddhamanagara." The inscriptions found in the French territories in Cambodia and Annam state that there were Brahminical Kingdoms and Sivism there in the 4th and

5th and centuries AD. In the Annaodale Report for 1913, it is stated there is clear evidence of the existence of a Hindu Kingdom in Pagan. Dr. Annandale says that the Brahmins once held away over the Malaya peninsula. "That there was intercourse also with Malacca is evident from many words in the Malayan language which Marsden has traced to an Indian or Sanskrit origin. To this day there are Klings or descendants of settlers from ancient Kalinga at Singapore.' The name of Kalings is derived from Kelling whence they are said to come. With reference to this ancient trade Sir Walter Elliot observes "There is no doubt that the intercourse between the east coast of India and the whole of the opposite coast of the Bay of Bengal and the straits of Malecca was far greater in ancient times. It had attained its height at the time the Buddhists were in the ascendant *i.e.*, during the first five or six centuries of era). The first great Buddhist persecution both checked it and also drove great numbers of the victims to the opposite coast. The Tamil and Telugu local histories and tradition are full of such narratives" (Quoted in History of Indian shipping, p. 14.7.)

Trade also carried on in this period with the island of Java which the Hindus have long colonised in the early centuries of the Christian era. This trade is proved by the evidence of the Chinese pilgrim Fa Hien who in the end of the 4th century found Java entirely peopled by the Hindus and who sailed from the Gangds to Ceylon, from Ceylon to Java and thence to Ghina on board a ship containing in all 200 passengers and by crew professing the Brahminical religion. It noteworthy that "astern of the great ship was a smaller one as a provision in case of the large vessel being injured or wrecked during the voyage". (Beal, Buddhist Records of the Western World, Vol. II. p. 269).

Trade was also carried on with Sumatra as has been pointed out by Dr. R.G. Bhandarkar in his article on the eastern passage of the Sakas [J.R.A.S. (Bombay Branch) XVII], Certain inscriptions show a Māgadhī element which May have reached Java from Sumatra and Sumatra from the coast either of Bengal or Orissa. M. Coleman says Mr. Anderson in his account of his mission to the coast of that

island (Sumatra) has, however, stated that he discovered at Jambi the remains of an ancient Hindu temple of considerable dimensions and near the spot various mutilated figures, which would appeal to clearly indicate the former existence of the worship of the Vedantic philosophy" (Hindu Mythology, p. 361). It is further observed in the Bombay Gazetteer (Vol. I. Part I, p. 493) that "the Hindu settlement of Sumatra was almost entirely from the east cast of India and that Bengal, Orissa and Masulipatam had a large share in colonising both Java and Cambodia cannot be doubted." In fact, notwithstanding the marvellous fertility. Of the soil and the wonderful industries that flourished in the country, India had to resort to colonisation of foreign lands to provide for her superabundant population. Professor Heeren rightly observes "How could such a thickly populated and in some parts overpeopled country as India have disposed of her superabundant population except by planting colonies ?" (Historical Researches, Vol. I. p. 310).

It was also in this age that we find the field of Indian maritime trade in the eastern seas extending as far as China and Japan. This commercial intercourse with China began as we have already seen, at the commencement of the Christian era while "the Chinese did not arrive in the Malaya archipelago before the fifth century and they did not extend their voyages to India, Persia and Arabia till a century later" (Mr. G. Phillips in the J.R.A.S. 1895, p. 525). The first eminent Buddhist to come to India was Fa Hien. A little before him in 398 Amitodana went to China. After him the Kwai-Yuen-Catalogue as well as other Chinese works mention a series of names of Buddhist priests who sailed between S. India and China. Thus in 420 Samghavarmi a Sinhalese went to China, in 424 Gunabarma went to China. In 429 three other Sinhalese went to China. From Bhikshunī Nidāna we learn that in 433 a party of Sinhalese nuns went to China on board a ship called Nandi. In 434, another batch of Sinhalese nun under the leadership of a certain Tissara went to China. In 435 Gunabhadra reached Kau in China, in 442 Samghabarman reached China by the overland-route and returned to India by the sea. In about 488 Samghabhadra went to

China. Mr. Kakasu Okaknra has remarked "Down to the days of the Muhammadan conquest went by the ancient highways of the sea, the intrepid mariners of the Bengal coast, founding their colonies in Ceylon, Java, Sumatra and binding Cathay (China) and India in mutual intercourse (Ideals of the East. pp. 1-2). Thus the Tamils, the Sinhalese and the people of Bengal were the principal sharers in the trade with China [History of Indian Shipping, pp. 165-66]

The great trading centres of Bengal in those days were Satgaon Champs, Sonargaon and Tāmralipti. Satgaon was called Tcharitrapoura in the time of the Chinese pilgrim's visit. Sonargaon was the greatest harbour of E. Bengal while Champs or Bhagal pur was the starting station for Subarnabhūmi. Fa Hien when he visited India (399-414) found Tamralipti as a great maritime settlement of the Buddhist and from its harbour he set sail for Ceylon. The ports of Sindh, Cutch and Gujrat, were famous for the volume of their trade with the East. Of these Sindhu or Debal and Orhet *i.e.*, Soratha or Veraval were the leading centres of trade with Ceylon (Yule's Cathay, I. CLXXVIII).

According to Professor Lacouperie (Western Origin of Chinese Civilization) throughout this period the monopoly of the sea-borne trade of China was in the hands of Indian merchants who exported into China pearls, rubies, sugar, aromatics, peacoks, corals and the like. While we know from Sakuntalā that India imported from China Chinese silk—

"*Gachchit Purah Shareerah dharati pashchad sansthitah Chetah China Shukmiva Kctoh protivatah niyamanasya*"

In the Indian exports to Europe dyes, cosmetics and artificial imitations of natural flower-scents bulked very largely and it is interesting to note that Vārahamihir who flourished in the sixth century alludes to the manufacture of these articles. According to Sukrsāhārya the regions of duties are the marketplaces, streets and mines (ch. II. Sec. 2, line 213). Duties are to be levied on goods only once [*Ibid*, *l.* 214). The King should receive the 1/32nd portion from the seller or buyer. Even a l/20th or with is a fair and legitimate duty (*Ibid*. *l.* 217). If the seller has to give the commodity

at a loss, no duty is to be realised from him but it is to be realised from the buyer (*Ibid. ll.* 218-19). But we should remember that it is difficult to carry out this maxim of Public Finance. The king should realise 1/32nd portion of the interest of the usurers (*Ibid. l.* 255). He should also have land tax from shopkeepers (*Ibid. l.* 257). He should realise from minerals at the following rates: half of gold, one-third of silver, one-fourth of copper, one-sixte of zinc and iron, half of gems, half of glass and lead after the expenses have been met (*Ibid. ll.* 233–35). He should realise 1/3rd, l/3th, l/5th, l/7th 1/ 10th or l/20th from collectors of grasses and wood (*Ibid. ll.* 237–38). In the gambling houses where the king's guards kept order 1/ 5th or 1/10th of the winning was the King's dues (Agni Puraua). It is interesting to note that according to Sukra "That man is a good collector of taxes and duties who realise these from shopkeepers in such a way as not to destroy their capital" (Ch. II. *ll.* 351–52). Levies were also made in kind. Thus it was laid down that the king shall take 1/8th of the increase of goats, sheep, cows, buffaloes and horses, l/16th of the milk of she-buffaloes, and female sheep (*Ibid. ll.* 239–40). The King should make the artists and artisans work one day in the fortnight for him (*Ibid. l.* 241).

In the marketplace, stalls or shops are to be placed according to the classes of commodities (Sukra Ch. I. line 516). And in determining the value of a commodity two points are to be noticed says Sutra; —(1) *Sulobhasulable* case or difficulty of attainment-referring to the cost of production determining supply (2) *Aguntagunshanshraya* its utility or power of satisfying wants etc. because of its properties—referring to the demand for it determined by its uses. (*Ibid. ll.* 718–19). And a merchant should fix l/32nd or l/16th part as profit in a business with due regard to the expenditure and to the conditions of the place (transport and not more (*Ibid. ll.* 628–29). According to Fa Hien in Ceylon at the time of traffic the demons did not appear in person but only exposed their valuable commodities with the value affixed. Then the merchantman according to the price marked, purchased the goods and took them away (Beal, LXXII).

There are certain regulations regarding trade and industry which betray surprisingly modern features. Thus it is laid down that if wealthy men of good manners are ruined in a business, the thing should protect them and suchlike men (Ch. V. *l*. 180 f.). This is a notable instance of State Intervention in Industry. Further, the seller of bad (adulterated) food is punishable like a thief (*l*. 641). Again, according to Yājnabalkya "for traders combining to maintain a price to the prejudice of labourers and artisans although knowing the rise and fall in prices the fine shall be the highest amercement. For traders combinding to obstruct the sale of a commodity by demanding a wrong price or for selling it, the fine is the highest amercement." The sale or purchase should be conducted at the price which is fixed by the king. The surplus made there from is understood to be the legal profit of business. Nor is all. It is laid down in—Śūkranitisāra that without the permission of the king, the following things are not to be done by the subjects —gambling, drinking, hunting, use of arms; sales and purchases of cows, elephants, horses, camels, buffaloes, man, immovable property, silver, gold, jeweller of intoxicants and poisons, distillation of wines, the drawing up deed indicating a sale or gift or loan. and medical practice (Ch. f. line 603–08). Here is a mention of those practices and professions which for public safety, social peace and future interests of the parties concerned should be endorsed by the state and receive a royal patent, character or license to testily to their bonafide charter. In all these cases the state according to Sukrācharya must interfere even on the principle of individualistic minimum. Here the hoary Sukra and, the modern Sidgwiek are on common ground.

Coming to the trade organisations we find that both Nārada ((III. 1–9) and Yājnabalkya (II. 262 ff.) have laid down rules for the transaction of joint business *Saubhujasambhanam*. Nārada expounds the fundamental principles of joint stock business thus;— "Where traders or others carry on business jointly, it is called partnership which is a title of law. Where several partners are jointly carrying on business for the purpose of gain, the contribution

of funds towards the common stock of the association forms the basis (of their undertakings). Therefore let each contribute his proper share. The loss, expenses and profit of each partner are either equal to those of the other partners or exceed them or remain below them according as his share is equal to theirs or greater or less. The store, the food, the charges (for tools and the like), the loss, the freight and the expense of keeping valuables must be duly paid for by each of the several partners, in accordance with the forms of their agreement." [(Nārada III. 1-4); S.B.E. Vol. XXXIII. p. 124]. It thus appears that an agreement was drawn up among partners, intending to carry on business together, in which the general principles upon which the business would be managed were clearly laid down. Sukrāchārya called this business deed as and defined it as "one which individuals frame after combining their shares of capita for some business concern (*ll.* 627–28). According to the comments of Chandeśvara on Nārada III. 4 quoted above, a partner if necessary could draw from the commonfund an amount regularlated by the share he paid (Vivādratnakar p. 112).

From Nārada III. 3 quoted above we find that losses, expenses and profit of each partner are proportionable to the amount contributed by him to the joint stock. Yājnabalkya, however, lays down that the profit etc., may be either in proportion to the amount contributed by each or as originally agreed upon among the partners. Thus by virtue of this previous agreement, some of the partners probably on account of their greater skill and special knowledge, might enjoy a greater share of the profit, than was warranted by the amount of money contributed by them. The relation of the individual to the corporate body was also clearly laid down. Thus, Nārada, III. 5 lays down that when a partner injure the joint property through his negligence by acting without the assent or against the express injunctions of the other partners, he must compensate for the loss. Yājnabalkya (II. 268) says that if a man is guilty of fraud he expelled from the company, paid his capital but deprived of profits. Yājnabalkya (II. 263) and Nārada (III.6) however refer to special rewards being given to worthy members. It is no lass

interesting to find that the joint stock company also looked after the interests of the individual even after his death (Nārada III. 7; Yājnabalkya II. 267). It is also worthy of note that pretests carried on sacrificial acts and ceremonies on the same principle of partnership (Yājnabalkya II. 268 and Nārada III. 8 and 9).

System of Exchange

Such an immense volume of trade would necessarily presuppose the existence of a good system of exchange. And we find from Yājnabalkya (1. 361ff.) that there existed in this period also a large variety of gold, silver and copper coins. Thus there where the golden dinār and suvarna, the māshas and krishnālas which were both silver and copper coins. According to Nārada (App. 57ff) in south the currency consisted of subarna and dinār, mashas, kakani and silver kārshāpanas. According to Mr. V.A. Smith "the coinage bears an unmistakable testimony to the reality of Roman influence and the word dinār, the Latin denarius, was commonly used to mean a gold coin" (Oxford History of India, p. 162). Nor is this all. We find from the inscriptions of the period that the guilds performed the functions of modern banks by allowing investment of money and property in it and giving interest therein. Thus the Indore Coyber Plate Inscription of Skandagupta (Fleet, Gupta Inscriptiptions No. 16) daten in the year 465 AD records the gift of an endowment, the interest of which is to be applied to the maintenance of a lamp which has been established in a temple for the service of the Sun-god.

We shall now touch on a few rules regarding loans and interests which are undoubtedly of great economic importance. According of Sukra money lending was an approved line of business (Sukra III. *ll.* 365-67) and the following points are to be noted with regard to a loan transaction —(1) The business qualifications of the debtor are to be studied. (2) There are to be pawns or securities (3) There must be men who stand bail (4) There are to be witnesses. (5) Receipts for value received as well as documents mentioning other conditions should be prepared (III *ll.* 384-85). It is further laid

down that when the amount drawn from the debtor in the form of interest has reached twice the principal, then the king shall make the debtor pay only the principal to the creditor and nothing more than that (*ll* 631-32). If four times the value have been receive by the creditor from the debtor, the former is to receive no more (Ch. V. *ll*. 192-95). Again, it is said that creditors take away people's wealth by compound interest. So the king should protect the people from (*ll*. 633-34). But if somebody does not return the money to the creditor when he is able, the king should make him bay that back by the methods of Sama Danda etc. (*ll*. 635-36).

We have now seen the wonderful achievements of the period in the various arts and crafts the immense development of foreign trade which was not satisfied with the markets of Europe and Egypt alone but also found vent is a regular traffic in the eastern waters between Bengal and Ceylon, Kalinga and Suarnabhūmia embracing the islands of Java, Sumatra and Malacca. Cambodia, China and even Japan. The result was the growth of the proverbial wealth of India and "those great monuments of art while India was enabled to erect after clothing and feeding her own people". Hence we find the immense stress laid upon wealth by Sukrāchārya "In this world wealth is the means to all pursuits. So man should try to acquire that by good ways and means *e.g.*, by good learning, good service, valour, agriculture, usury, store-keeping, arts or begging." (III. *ll*. 364-67). "Even defects are regarded as merits and even merits defects of the wealthy and the poor respectively. The poor are insulted by all." (III. *ll*. 370-71). And again "man is the slave of wealth, not wealth of anybody; so one should always labour for wealth. Through wealth men get virtue, satisfaction and salvation" (Ch. V. *ll*. 77-79).

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Economic Life under Harsha Rule

The most valuable description of India's prosperity and wealth by Yuan Chuang combined with that of Bāṇa and the epigraphic and numismatic evidences give us a detailed account of economic life of the people during the seventh century AD. With the dawn of this epoch-making century a new era of peace and order was inaugurated by Harṣa after the political anarchy that existed for more than one hundred years. By the political reunification of almost the whole of Northern India after disintegration following the downfall of the Imperial Guptas, Harṣa inferred an inestimable boon upon the people. Under his strong and well-organized administration we find a remarkable growth and development of agriculture, industry, trade and commerce. In the pages to follow an attempt is made to survey the progress made in these fields.

Agrarian Economy

Agriculture is rightly said to have been one of the chief means of livelihood of the bulk of the people throughout the ages. It has contributed considerably to the economic prosperity and richness of India. Yuan Chuang gives us the minutest details of agricultural and natural products of various parts of India. He says, "As the districts

vary in their natural qualities they differ also in their natural products." At Lampa the country produced "upland rice" and sugar-cane and it had much Wood and little fruit. At Nagar, grain and fruits were produced in abundance and the country of Gāndhāra was famous for its "luxuriant crops of cereals and a profusion of fruits and flowers." There, we arc told, much sugar-cane and sugar-candy was produced. Kashmir was famous for its saffron and abundant fruits and flowers. The toil of Takshaśilā and Simhapura was fertile and produced good crops, with flowing streams and luxuriant vegetation.

After visiting the north-west region the pilgrim comes to the Indo-Gangetic plain and describes the agricultural products of the region. The people of Jālandhara produced rice and other grain and fruits and flowers were in abundance. Around Mathurā the soil was very fertile and the agriculture was the chief business. This region also produced a fine stripped cotton." The soil of Śthāṇiśvara and Śrughna was rich and fertile and the crops were abundant; but "the majority pursued trade and few were given the farming." The soil of Matīpur and Govišana yielded grain, fruits and flowers. The country of Ahichchhatrā was mainly an agricultural one. The pilgrim, while describing about Kānyakubja, tells us that "the inhabitants were well off and there were families with great wealth; fruit and flowers were abundant and sowing and reaping had their seasons." The country of Ayodhyā "yielded good crops" and fruits and flowers were in abundance. The land about Prayāga and Kauśāmbī was also very fertile and the main occupation of the people was cultivation. We do not find detailed description of crops that were produced at Prayāga; but the land about Kauśāmbī "yielded much upland rice and sugar-cane." As the pilgrim marched further "the grain crops of the country were very plentiful" and "fruits and flowers were abounded." The regions between Śrāvastī and Kuśīnārā were also very fertile and had good crops. The soil of Kapilavastu was "fertile and farming operations were regular."

From the description of the pilgrim it seems that the country of Kapilavastu was not very prosperous. We are informed that in such

a small country more than ten cities were utterly deserted and ruined. The pilgrim records that the people of Vārāṇasī had boundless wealth. There "the harvests were abundant; fruits and other trees grew densely and there was a luxuriant vegetation." The country of Magadha was also rich in soil and yielded "luxuriant crops." The pilgrim informs us that "a kind of rice with large grain of extraordinary savour and fragrance called by the people 'the rice for grandees,' was produced at Magadha." In Bengāl (*Puṇḍravardhana, Karṇasuvarṇa etc.*) the land was moist and "crops were abundant; the Jack-fruit was plentiful"; the population was dense and the "farming operations were regular." The country of Kāmarūpa was also "low and moist" and the "crops were regular." The famous products were the Jack-fruit and Cocoa. These products were abundant and people took much interest in their farming.

In his general survey the pilgrim recollects that the fruits of the āmra (*mango*), the āmla (*tamarind*), the Madhūk (*Bassia latifolia*), the badara (*jujube*), the Kapittha (*wood-apple*), the āmala (*myrobalan*), the tinduka (*diospyros*), the udumbara (*Ficus glomerata*), the mocha (*plantain*), the narikela (*cocoanut*) and the panasa (Jack-fruit) were produced in various parts of India. He summarises his description of fruits with the following words: "It is impossible to enumerate all the kinds of fruits and one can only mention in a summary way those which arc held in esteem among the inhabitants." Some of the common fruits were pears, plums, peaches, apricots and grapes which were planted "here and there"; but pomegranates and sweet oranges were grown in all the parts of the country. So far as the farming was concerned the people prepared the soil well. Sowing, planting and reaping were carried on their seasons according to the industry. From the survey of the Chinese visitor it seems that all the cultivators were not hard-working and alert. Some were lazy and legged behind in their profession. The main agricultural products were rice, wheat, ginger, mustard, melons, pumpkins and kunda.

This is "a long but admittedly incomplete list of principal food-grains and fruits." But from this description of the pilgrim it

is almost definite that the whole of Northern India was fully cultivated and was very prosperous with its agricultural and natural products. The entire tract of the Gangā Valley and the Gangā-Brahmaputrā delta were great fertile areas. Like Yuan Chuang, Bāṇa also gives a detailed description of "the excellences of the good soil," of the Śrikaṇṭha Janapada of which Śthāṇīśvara was a part. There were "the unbroken lines of Puṇḍra sugar-cane" and its "marches were packed with corn heaps," The entire land is said to have been adorned with rice crops "extending beyond their fields" and the wheat crops were abounded. Bāṇa's accounts also include the graphic description of pot-herbs, plantains, vine-arbours, pomegranate, orchards, arbours, Pīlu sprays, citron leaves and saffron filaments. Strangely enough, Bāṇa also mentions that "the woodrangers tasted the cocoa-nut juice" and that the travelling folk plundered the date-trees. These days the products of the north, generally speaking, do not include the cocoanuts and the date-trees; but it is quite likely that the people of Sthaṇaiśvara might have grown cocoanuts and date-trees during the period under review. From Bāṇa's description it appears that the people were also familiar with the advanced technique of irrigation system. He informs us that the farms were "watered by the pots of the Persian Wheel."

Ownership of Land and Property

From the grants of Harṣa it appears almost certain that the ultimate owner of the land was the sovereign who could grant the land or the whole village to any one he liked. The farmers were his tenants and paid one sixth of the produce as rent. The complete ownership of the land or the village was enjoyed on the strength of a royal grant (*Śāsana*) by any individual. Sometimes people also tried to enjoy such ownership of the strength of some forged Śāsanas. Dr. Bühler points out that such forgeries existed during the age of Harsa. The village of Soma Kuṇḍikā had formely been enjoyed on the strength of such a forged document by one Vāmarathya from whom it was taken after destroying the old plate. But there is nothing unusual or uncommon if we find such an example during

the period under review. Today there is hardly any village in India where we do not find quarrels for land. That the forged ownership was detected by the Government and the guilty was brought to books and the land was alloted to the real owner speaks of Harṣa's efficient system of administration. When a tract of land or a village was donated to some one the entire revenue was given to the done. Thus we find that the ultimate ownership of the land was vested with the sovereign, the latter also owned the royal land. It was divided into four divisions; the income from one part was used for the "expenses of Government"; one for the "endowment of great public servants", the third part was reserved for rewarding "high intellectual eminence" and the rest was distributed to the various sects for gaining "religious merit." The tenants, we are told, were required to pay the one sixth of the produce to the king or to the person to whom the land was donated. As the taxation was not heavy, the people kept to their hereditary occupation and attended to their patrimony. Light duties were imposed upon the tradesmen which were exacted at ferries and barrier stations.

Development of Various Industries

Although India was primarily an agricultural country, the industry was not legging behind. Both Yuan Chuang and Bāṇa supply us with full information regarding the industrial development during the age of Harṣa. From the references to the different varieties of clothes," it is evident the textile industry was exceedingly advanced in the seventh century AD. The evidence at our disposal proves that the Metal Industry was also highly advanced during the period under review. Some of the household utensils were made of brass and copper. All the implements of war such as spear, shield, sword, sabre, arrow, coat-of-mail etc. were made of iron. Bāṇa also informs us that the swords were so finely polished that they could also be utilized as mirrors. Queen Yaśomatī is said to have seen her face in the sword's blade." At Vārāṇasī the pilgrim saw "a t'ushi (bell-metal ?)" image of the Deva "nearly hundred feet high" and "which was life-like in its awe-inspiring majesty." At Nālandā he noticed

another copper image of the Buddha more than 80 feet high." Several fine and artistic works of metals, especially of gold and silver were also made for decoration and presentation. We are informed by Bāṇa that at the time of marriage ceremony of Rājyaśrī, a number of gold-workers had been engaged in hammering gold which was used for making works of art. Other industries also appear to have been flourished during the period under review. At the time of Rājyaśrī's marriage several artists were invited who included among themselves the carpenters, leather-workers, designers, modellers, ivory-workers, painters, dyers etc. They are separately described to have been busy in their respective jobs.

The long list of different articles which were sent by Bhāskaravarman, the king of Assam, throws enough light on various industries. Among these articles were the famous ornaments, bright gold-leaves, pillows of Samūruka leather, cane stools, thick bamboo tubes containing mango sap and oil, bundles of woven silk, Gośīrṣa sandal, camphor, carved boxes of panels for painting, gold-painted bamboo cages, and rings of hippopotamous ivory. The art of gem-cutting and jewellery was also highly developed. Among the companions of Bāṇa, there was one hairikaḥ who was expert in gemmology. Different kinds of jewels are mentioned in Bāṇa's Works and the records of the pilgrim. They were used in making ornaments, and in decorating the thrones, beds, mirrors, and even the elephants were decked with pearls. Bāṇa informs us in the Kādambarī that Chandrapīda was taught the science of examining gems, pearls and other precious stones.

Commerce and Trade

From the development of various industries it can be easily inferred that trade and commerce must have been in the nourishing conditions. Moreover, we have the definite proofs that the trade in the seventh century AD was in highly advanced condition. Yuan Chuang throws sufficient light upon the progress of India's trade and commerce. He informs us that the "tradesmen went to and fro bartering their merchandize." The government also encouraged trade

by levying "light duties" which were paid by the tradesmen at different "ferries and barrier stations." While giving a few particulars about the division of the people of India, he describes that the third order was "class of traders" (*Vaiśyas*) who "bartered commodities and pursued gain far and near."

From some of his indirect references, too, we find further support to our conclusion. He writes that rare and precious substances of various kinds were bartered for merchandize from the sea-ports. The majority of the people of Sthāṇviśvara "pursued trade" and "varieties from other lands were collected in this country." He is corroborated by Bāṇa who also informs us that Sthāṇviśvara was "the land of the philosopher's stone for the seekers of wealth" and it was "the land of profit for the merchants." The capital city of Kānyakubja was also famous for its rarities which were collected from strange lands." The people of Ayodhyā are said to have been devoted to "practical learning" which indicates their craftsmanship. At Vārānasī the people "had boundless wealth" and their houses were full of rare valuables." All these evidences throw light upon the progress of trade and commerce.

Commercial Relations with Foreign Countries

The testimony of Yuan Chuang and Bāṇa proves that international trade was carried on with China, Ceylon, Persia and other countries. Yuan Chuang informs us that the city of Charitapura (*Che-li-ta-lo*) was "a thoroughfare and resting place for sea-going traders and strangers from distant lands." The post of Tāmralipti was also a noted centre of sea-trade and the inhabitants of Sūrat utilized the sea and they were traders by profession. Bāṇa informs us that the land of Śrīkaṇṭha Janapada was irrigated by the pots of the Persian wheel. In the Kādambarī we are informed that the famous horse Indrāyudha was sent by the monarch of Persia. In the cavalry of Harṭa Bāṇa saw the horses from Persia along with those of Vanāyu, Kamboja, Araṭṭa, Bhāradwāja and Sindha. In the Harṣacharita and Kādambarī he tells us at more than one occasion that China silk (*Chīnānśuka*) was very famous during the age of Harṣa.

From these evidences it can be safely concluded that the international trade was in flourshing conditions and that it was conducted mainly through the sea. India's maritime activities extended in the eastern waters, as far as China and Japan (Mukherji, 1912-165). Mr. Kakasu Okakura informs us that "down to the days of the Mohammedan conquest the intrepid mariners of Bengal coast" founded their colonies in Ceylon, Jāvā and Sumatra and Cathay (*China*), and there was "mutual intercourse. Our maritime activity was also "equally manifest towards the West." We are told that the ships of India and China "could be seen constantly" at Hira on the Euphrates as early as the fifth (?) century AD. (*Ibid.:* 168). There seems to be a constant, traffic accross the sea between India and China in the seventh century AD" Various representations of ships and boats in the Ajantā paintings are "rightly interpreted" by Griffiths as only a vivid testimony to the ancient foreign trade of India."

Although the rare and precious commodities of various kinds were "bartered for merchandize, the trade and commerce of the country was conducted through definite media of exchange." The pilgrim informs us that gold and silver coins, cowries and small pearls were the media of exchange. In Nepal copper coins were the medium of exchange.

Coinage Under Harsha

Dr. John Allan, writing in 1914, opined that "the right of coinage has never been the jealously exercised symbol of sovereignty among Hindus that it was amongst Muhammadans." He continues further, "some of the greatest of Hindu sovereigns, *e.g.* Harṣavardhana, do not appear to have struck corins at all." At the very outset we must say that Allan was wrong. It is unthinkable that Harṣa, the emperor ruling over almost whole of Northern India, could have ruled for more than four decades without issuing coins. The Chinese pilgrim who visited India for nearly fifteen years, and who writes his accounts on the basis of his personal and on-the-spot study, says "in the commerce of the country gold and silver coins, cowries, and small pearls are the media of exchange."

This description makes it abundantly clear that Harṣa's regime was not without coins.

It can be argued that Harṣa did not issue his own coins and allowed the use of the coins of his predecessors and those of his brother-in-law, Grahavarman and his predecessors. But this can only be accepted in case of a ruler ruling for a short period and over a small kingdom. Harṣa, as we know, ruled for more than forty years and his frontiers covered the land from Kashmīra to Narmadā and from Gujrāt-Kāthiawār to Kāmarūpa. His times also saw the tremendous growth of trade and commerce and no one can believe that it could be possible for Harṣa to rule over it without the use of coins, a definite and standard medium of exchange. It also appears that an article on "Some-Coins of the Maukharīs and the Thāneśvara Line" by R. Burn did not receive Allan's attention. This is clear from the fact that Burn's article appeared in 1906 whereas Allan published his book in 1914. Had he seen Burn's article he must have referred to it and, would not have made such an outright remark that Harṣa did not issue the coins.

These coins were found in 1904 by a labour at Bhitaura in Amsin Paragana of Faizābād District. They include one gold, 522 silver and eight copper coins. According to Burn one of these coins may be attributed to Harṣa (*not Harṣa*), 9 to Pratāpaśīla (*king Prabhākarvardhana*), and 284 to Śīlāditya (*Harṣa*). Of the remaining coins 9 are attributed to Iśānavarman, 6 to Sarvavarman, and 19 to Avantivarman. The scholars did not agree with Burn and the view of the latter was challenged by some of them. Hoernle tells us that "the correct attribution of these coins is not so simple as it may appear at first sight." Referring to Burn's readings he says, "Mr. Burn is disposed to attribute them to Harṣavardhana. To myself that attribution is very doubtful. The title Śīlāditya was not uncommonly assumed by, or given to rulers of that period. Hiuen Tsang gives the title principally to Harṣavardhana, but he mentions other rulers also, who also bore it."

In view of these conflicting views I discussed this problem with Dr. J.N. Banerjee, formerly Carmichael Professor of Ancient

Indian History and Culture, Calcutta University. The learned scholar supported the theory put forward by Mr. Burn. Dr. Banerjee told me that in support of Mr. Burn's contention it may be said that the coins are attributed to the Maukharīs and the Puṣpabhūtis and that the Maukharīs were closely related to the Thāneśvara king Harṣa, being brother-in-law to Grahavarman. It is well-known that after the assassination of Grahavannan the sovereignty passed from the Maukharīs to the Thāneśvara king. It is, therefore, possible that 'Pratāpaśīla' and 'Śilāditya' coins were struck by Harṣa. But it seems better to adopt Mr. Bum's attribution to Prabhākarvardhana and Harṣa. The cresent which appears on all these coins, accordingly to Dr. Banerjee, seems to have been derived from the coins of the white Hūṇas who copied it from the Sassanian series. (JRAS, 1909: 448) Prof. Bajpai opines the Silver coins of Harṣa are of "Madhyadeśa type of the Gupta silver coinage." The learned professor has also drawn out attention to one gold coin of Harṣa acquired by him from Farukhabad in Uttar Pradesh. Prof. Bajpai read the Brāhmī legend on the obverse of the coin as follows: *Parama bha ṭṭāraka Mahārā Jādhirāja Parame-śvara Śrī Mahārā (ja Ha) rṣdeva.* Prof. Bajpai rightly "attributes this gold coin to Harṣa", the son and successor of King Prābhakaravardhana of the Puśpabhūti dynasty of Thānésvara and Kanauj. The learned scholar has maintained that the titles assumed by Harṣa in his coin are "compared with those assumed by him and known to us from his records and his seals." He also affirms that "the characters of the Brāhmī legend on the coin leaves no doubt as to its date. They are similar to the Brāhmī characters of the Madhuban and Banskhera records of Harṣa." Thus we can, quite safely, conclude that Harṣa issued his own coins and they must have formed a standardised medium of exchange.

Urbanisation

Thus enormous growth of industries and trade naturally led to a tremendous growth of city-life (Das, 1925: 273). There were many cities which "were the centres of prosperity." The "prosperity and importance of Kanauj grew tremendously under Harṣa and it

became "the premier city of Northern India supplanting Pataliputra." It was "very strongly defended" and had "lofty structures everywhere". The city was full of many beautiful parks and gardens and tanks of clear water. People of Kanauj were very fond of rarities which were collected from different countries. They were well-to-do and there were "families with great wealth." Bāṇa also gives the glimpses of the immense wealth and grandeur of city-life while giving the description of Ujjayinī. Though the picture of this great city, as drawn by Bāṇa is fantastically exaggreated, it indicates the wealth and prosperity that was accumulated in the big cities. Takṣaśilā, Jālandhara, Mathurā, Sthāṇviśvara, Matīpura, Mayūra, Ahichchhatrā, Kapitha, Ayodhyā and Kauśāmbī were some of the famous and prosperous cities of Northern India. Prayāga and Vārāṇasī are highly praised by the pilgrim for their wealth and prosperity. They were densely populated arid "had boundless wealth" and possessed ""rare valuables."

But on the other hand some of the famous and great Buddhist centres were losing their importance. Śrāvastī, Kapilvastu and Vaiśālī, which once had been very famous centres of Buddhism were in ruined condition. In the province of Kapilvastu there were more than ten deserted cities "all in utter ruin." But Nālandā was at the height of its glory and progress. Champā and Rājamahal were famous towns of Bihar. Sūrat and Valabhī were important trade centres in Western India. Puṇḍravardhana, Tāmralipti, Samataṭa and Karṇasuvarṇa were the renowned cities of Bengal. The capital of Kāmarūpa was also in flourishing condition and there were continuous streams and tanks in the towns. There were no big cities in Kāmarūpa. The pilgrim informs us that "the country was a series of hills and hillocks" and it was "without any principal city."

We have no direct evidence of any commercial organization but in the literature of the period under review some sidelight is thrown on the nature and organization of the industrial and commercial guilds. Dharmaśāstras like those of Nārada and Bṛihaspati represent that the progressive advancement of the guild organizations continued during this period. These works indicate, in a general

way, that very great importance was attached to these organizations as an important factor in the society.

Both Yuan Chuang and Bāṇa give us an identical account of the economic prosperity and a high standard of living among the rich classes at least. The people of Sthāṇviśvara and Ujjayinī are picturesquely described by Bāṇa for their wealth and luxury. Yuan Chuang, too, informs us that the greater part of the country enjoyed a good standard of living and high prosperity. His description of various places such as Sthāṇviśvara, Kānyakubja, Vārāṇasī, Puṇḍravardhana, Tāmralipti, Valabhī, Sūrat etc., undoubtedly reveals that the people were wealthy, luxurious, prosperous and happy. The people esteemed learning and observed a high standard of morality. They attached due importance to religious, spiritual, aesthetical and cultural aspects of life.

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Abdul Sabahuddin, a noted mediaeval historian and translator of several Persian Manuscript into English, devoted his life more than thirty years in research and teaching in Hyderabad. He has written several books and research papers and translated Persian Manuscript into English. This book is one of his important contributions to the Economic History of Ancient India.

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